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SUPERVISORY LEADERSHIP ON THE PART OF THE HIGH-SCHOOL PRINCIPAL

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Some time ago the writer had occasion to ask a high-school principal this question: "What aspect of high-school administration would you like to have more fully discussed in our professional literature?" His reply was unhesitating: "More than anything else at present, I should like to know in detail what the high-school principal should do by way of providing effective leadership within so diversified a group as that which makes up the modern high school. Everybody agrees that he should be the leader and they speak in large general terms of the importance of his leadership, but nowhere does the professional literature get down to brass tacks and tell the high-school principal what, in a detailed way, he ought to be doing by way of absolving these large responsibilities."

One has only to look through the books on high-school administration to find his statement amply substantiated. When the topic of the principal's responsibility for leadership is broached, usually a sentence or two is devoted to the responsibility and to its strategic importance in the organization; then in practically all cases the discussion veers off into consideration of the teachers' rights to initiative, to the need of

respecting the principles of democracy in management, and to the limitations upon the principal's leadership. The profession appears to have certain fairly definite ideas as to the rights and duties of teachers, but to be much less clear as to specific professional rights and duties of principals.

While we cannot here enter into sufficient detail, we can at least indicate some of the general classes of functions which the principal should probably be doing.

1. *The principal should acquire and maintain a clear and accurate vision of the total series of results that are to be achieved by the organization to which he is providing leadership.* We are coming to conceive the task of the American high school as being not the simple impartation of a goodly number of familiar and more or less standardized academic subjects, but rather the preparation of boys and girls of adolescent ages for effectively performing the diversified activities with which men and women are currently concerned in the world of active affairs and with which they consequently are soon to be concerned. We are to look upon these young people not merely as opportunities for academic exploitation, or as vessels into which academic specialists can pour their beloved and overvalued subjects, but as those who are becoming the active agents for carrying on the activities of the world of affairs. They are to be seen as individuals with immature or unmaturing abilities to act, in whom these abilities are to be rightly matured by those who are training them. The results of education, therefore, to which the high school must look and for which the principal must prepare himself to look are *abilities to act* in the many, many ways in which the adult world acts when it is properly carrying on its innumerable affairs. Such activities involve knowledge, it is true, but not knowledge in the abstract so much as specific knowledge for each type of act as to *what* to do, *why* it is to be done, *how* and *when* and *in what degree* it is to be done. But in addition to

such knowledge very much else is needed before one is prepared rightly to act. He must also have right attitudes of mind, right valuations of the action, the appropriate impelling desires and aspirations, and the requisite habits and forms of skill. These are as fully the legitimate objectives of secondary education as knowledge. And they must be aimed at if they are to be attained. No more than in the case of a marksman will education hit the mark unless the aim be definite and true. The time has come when secondary education must fire with the rifle and not with a spray type of garden-hose.

It is clear that the ends of high-school education must be highly particularized and therefore very numerous. We must not merely look to making a good citizen of the boy or girl in a general way, but we must specifically aim at giving him the power rightly to judge, for example, of the efficacy of the labors of public utility corporations and the power, desire, and habit of acting in appropriate ways upon the basis of such judgments. We must seek to develop an understanding of the dependencies of the many specialized social groups, of the necessary large-group attitudes, and to fix habits of action consonant with such understanding and attitudes, to train them effectively and specifically for the performance of directorial, inspectorial, and effectuating functions in connection with education, public health care, public recreation, transportation, and the many other things which must be managed wholly or in part through co-operative social effort. This is to lay out a highly definite and particularized series of citizenship objectives as the goals of adolescent training in this field.

We have not space here for further illustration, but in the same way the labors of the high-school group must look definitely to specific objectives in the field of health care, in the upbuilding of physical vitality, in the preparation for the technical aspects of one's vocation, for the social labors involved in the co-operative supervision of the economic world, in the

preparation for a diversified series of leisure occupations, in the preparation for parental activities, etc. The high-school group needs to be looking clearly and always to the activities of the adult world, in both their actual and potential forms, as the things that reveal the ends of education. They need to be primarily *specialists in mankind* and in the affairs of mankind, and only secondarily in the means, tools, instrumentalities, processes, etc., to be used in achieving the ends. The high-school group should see the subjects as but means to ends, as things to be used or neglected according to the dictates of those ends, and to be modified in any way whatsoever that is dictated by the ends.

High-school teachers in general do not have this vision of educational ends. They know subjects as ends but not as means. They see pupils as vessels, not as agents. In the rare moments in which they may attempt to conceive of those pupils as adults, they tend even then to conceive of them as vessels rather than as active agents. Their training, in its usual form, has not given them the things needful for any proper vision of educational ends. Each has taken a major sequence in some college in a subject which most usually is abstract and remote from the current, practical problems of the active world of today, possibly a minor sequence in some other subject which is just as frequently remote from the present world of action, and then a number of scattering elective subjects which, in a great majority of cases give no adequate or even semi-adequate revelation of mankind of today or of present-day problems. It is possible for one to go through our colleges and to be intensively trained for teaching some special subject in a high school and yet have received practically nothing to indicate even the existence of a world of human action round about him, or of the infinitude of complex social, economic, hygienic, and other problems with which men and women have to deal in both thought and practical

action. He has not become a specialist in mankind; so far as his studies go he has scarcely discovered that the mankind of today actually exists. The case we are painting seems a little extreme because students do have some opportunity in going to and from college, in their vacations, and in their general out-of-school experience, to discover for themselves the world of today, and they gain still further understanding from desultory reading of newspapers and magazines. These are, however, seen in very fragmentary and superficial ways and are not seen in any relation to either educational ends or processes. With this very minor qualification, we probably have indicated the type of social vision of the average high-school teacher.

Let us now apply this to our general theme. The principal of a high school who would provide efficient leadership must first himself acquire a vision of the particularized ends of education. He bears responsibility for diligently reading the affairs and relationships and abilities of men by way of acquiring this professional vision. He needs not merely to keep himself in contact with the community life so as to be able to observe, but he needs actually, as far as he can, to mingle in the multifarious affairs of the community in order that through participation he may effectively take on community attitudes, community valuations, etc. He need not be greatly concerned with divesting himself of special-subject obsessions and traditions. As he comes to see the real objectives of education, the subjects as modified by his more social point of view will naturally fall into their rightful subordinate places as means to the ends in view.

2. *The principal will develop and maintain in all members of his teaching staff a vision of the ends to be attained.* The ends which the members of all of the associated departments in the high school should hold in view are the same. Under present conditions, however, the members are specialists in

subject-matter of specialized types, and it will be found that the subject-matter of any department is efficacious in promoting some of these ends and has little or no relation to the promotion of others. It is desirable, however, that each teacher, of whatever department, look to the total series of ends in order to make the work of his department count as fully as practicable toward achieving the total series. Furthermore, there is need of co-ordinating the work of different departments so as to bring them to work harmoniously and to re-enforce each other in the attainment of the ends.

The principal is responsible for effecting this co-ordination of effort; but he cannot do it by possessing the vision alone, and then by giving to all teachers detailed co-ordinating directions. Where the labors of an organization are efficient, it will usually be found that the several members of that organization are so completely conversant with ends and processes that they could for the most part, without leadership, travel the road alone. They will not do it so well, but their vision of the ends to be reached and their knowledge of the processes to be employed constitute the best possible guidance for effective advance. The leader of a large, complex group is not expected to do all of the looking and thinking, judging and deciding, for the members of his group. In matters of detail, certainly, each is expected mostly to do these things for himself within limits set by general policies and directions given out by the leader. Now in order that individuals be able to take the initiative as to the details and rightly fit their efforts in relation to the objectives and to the labors of their associates, the most important thing is that they have a full and detailed understanding of the results to be achieved. It is clearly desirable that each specialist, whatever the type of his work, should be fully conversant with the total series of objectives which are to be achieved by the total labors of the organization.

Under present conditions, teachers have no such vision of objectives. Each department has a small series of subject-matter objectives which have relation to their special subjects. Each department has its own separate set. No department has any even semi-adequate vision of the total series of objectives for the work of the entire organization. Teachers are not in a position, therefore, for proper self-guidance, nor for self-co-ordination of their several parts of the work.

The principal's responsibility here for leadership stands out clearly. He must not only have a vision of the specific outcomes, but he must also see to it that each of his followers develops and maintains a vision of the same ends. He must place before his teachers as complete and detailed a list of them as he can provide. He must help them *to see*. He will do this by explaining things himself, by having the things explained by other specialists within the organization, and by specialists from outside. He must set tasks which will require careful observation of social affairs by his teachers and other tasks that will require participation by the teachers in community activities. In every possible way, through reading, lectures, observation, participation, etc., he must bring all the members of all the departments to a full understanding and realization of the fact that all of them as a group are aiming at the same objectives, and also make equally clear the nature of each of the detailed objectives.

Another method that he will continually use is to require teachers to take the initiative in planning the details of the work in every department, and to require that these self-initiated plans shall always look definitely toward the specific social and personal results to be achieved. As he approves teaching plans that are properly drawn, he will discover the degree in which each teacher has acquired an understanding of the ends. As he disapproves proposed procedure, he will discover the degree in which the teachers fall short in under-

standing and also the exact places where their understanding needs to be developed and clarified. Thus by providing leadership in their work, but leaving the initiative largely to them, he best discovers where his own efforts as leader are to be placed and the exact nature of those efforts. Under such conditions there is complete democracy within the organization, and each teacher is permitted to go alone so far as he has the ability. The leader, on the other hand, performs his proper function in giving guidance, help, stimulation, encouragement, etc., just where needed.

3. *The principal needs to inform himself thoroughly as to the processes to be performed in the attainment of each of the several objectives.* He cannot guide the work of the organization in only general ways; he must guide in the performance of specific activities. He needs not only to know, for example, that the ability to judge of the services of public utility corporations is a proper educational objective, but he also needs to know equally well the kinds of experiences which the pupils must have by way of developing and maintaining this ability. Under present conditions it is quite obvious that he cannot leave the procedure entirely to his special departments. The history teachers will be at times concerned with public utility corporations, but they do not conceive their purpose to be the development of practical judgment in practical affairs. Even if they did so, they have not in their department the materials for providing all of the necessary experiences. They can contribute but a portion. The teacher of economics under present conditions does not usually see such a practical ability as the end and his subject as merely the means, and even when he does, quite clearly he has not within his department control of all of the processes needed for the development of the ability. In the same way the civics teacher has control of only a portion of the needed experiences. The teacher of mathematics also has something, and probably a good deal, to contribute, and likewise the teacher of applied science.

The time may come when we shall organize our training about activities rather than by subjects. That time, however, has not yet come. For a good while, it would appear, we must still have our subject-matter pretty largely organized by subjects. Each of the subjects enumerated will provide a portion of the experiences needed for fully attaining the objective of our illustration. Somebody must know procedure, therefore, in its totality so as to see that the portions in the different subjects are properly developed and co-ordinated so as most effectively to produce the desired result. Under present forms of organization, there is no one to do this but the principal. It seems that for each of the several hundred specific objectives of the high-school work, he needs to be familiar with best types of procedure in each case so as to see that the procedure is actually being employed by his several specialists.

Quite clearly his task as leader is first a task as learner. He must know the road himself before he can guide others along the way. He must master the types of procedure generally applicable before he is able properly to guide others in the use of it. Vigor, decisiveness, persuasiveness, industry, and other executive qualities, while necessary to the leader, are not in themselves sufficient. He must have *understanding of the detailed processes involved* in attaining each and all of the many specific objectives.

This statement must be interpreted in terms of the total situation. It is possible to interpret it in a way which shows it to be impossible because the tasks demanded exceed the capacity of human nature. It must be interpreted in connection with the other statement to the effect that in the matter of details the teacher must take the initiative in proposing and planning, while the principal, with his more generalized understanding of procedure, will make decisions as to the rightfulness of these more detailed plans. As we refer to the responsibilities of the leader, it must always be kept in mind

that his intelligence and powers of action are built out to their farthest limits through other more specialized intelligences and agents with whom he is associated as leader. He initiates in a general way, they in special ways; then, acting together, they reach a final decision as to the steps to be taken.

4. *The principal will develop and maintain within the various specialized members of his organization an understanding of the detailed procedure appropriate to the attainment of each of the several objectives.* The problem of organizing and co-ordinating procedure is an impossible one if the principal must do all the thinking and deciding and then inform each teacher of the particular things which he must do in the attainment of each objective. The direction of detailed procedure by the several teachers must be mainly self-direction. This implies not only vision of the total series of objectives, but also vision of the total range of procedure appropriate for each objective. The co-ordination of effort referred to in the illustration above must mainly be brought about by the different teachers taking the initiative in large part and doing the things which are dictated by the needs of the situation. They must be able, in chief measure at least, to read these demands themselves and take the initiative on the basis of their own reading. They will see everything from their own specialized point of view, and except in degree and except for a certain bias of the specialist, their ability to read both objectives and procedure should be of a character not greatly different from that of the principal.

In general, teachers do not have this type of professional understanding. The principal bears the responsibility for developing it within the high-school corps. He must in some-wise organize the labors of leadership so as to bring teachers to see the detailed procedure appropriate for each objective. Here again he will employ readings, lectures, conferences, discussion, observation, etc. By way of promoting the assimila-

tion of suggestions received in these ways he will see that teachers in all departments employ such understanding as they may have in drawing up the detailed plans from week to week for the achievement of the results. Only thus can he bring them to put their ideas to work and thus assimilate them into their professional consciousness. In all of these things he must not only be a fountain of information for their intellectual illumination, but also a fountain of enthusiasms and interests, and a source of general professional contagions.

This appears to be demanding a good deal of the principal. The thing appears far more difficult, however, than it will appear a few years hence when our ideas of educational objectives are much more definite and clear, and when we have developed a technique of presenting not only the particularized lists of objectives but also particularized types of procedure appropriate to each of them. At present our understanding is very vague and confused. The result is that we cannot see clearly just how to carry out such proposals, and this dimness of our vision creates an illusion of difficulty which is sure to pass away as understanding and technique are developed. Our profession at present has the work well under way.

5. *The principal as leader of the high-school group will delegate responsibility for activities to his more specialized associates as fully as possible.* In a high school of a dozen teachers or more, under present conditions at least, the high-school principal should not be expected to do any teaching. Much less should he be expected to do the clerical work which can be delegated to clerks, or the care and distribution of supplies which can be delegated to clerks, teachers, janitors, and pupils. It is not his business as leader to perform the detailed labors of the building. It is his business *to get them done* by the specialists of his group. His specialized task is to give direction to every portion of the work and then to see that everything moves at proper speed in the right directions.

Teachers are so busy with details for such long hours of the day that they cannot always keep their eyes focused upon the more distant objectives. The principal must be the specialist whose vision of the objectives never wavers or fails. In the same way, the teachers' multiple duties involve so much attention to specific processes that they cannot always keep in mind the total variety of possible experiences which they should weave into the lives of the pupils. The principal, however, is relieved of these details in order that he may be a fully equipped specialist in the processes involved in the attaining of each of the several objectives. He is the specialist in general vision of processes.

While he is the specialist in vision of ends and processes and bears responsibility for thought and decision in the performance of all of the labors of the organization, he performs his directorial function largely by bringing the teachers to do their own seeing, using his vision only as a corrective to theirs, and by bringing teachers to do their own thinking and deciding, again using his more generalized thought and judgment as correctives of deficiencies, prejudices, and errors. As the specialist in vision, he is but the leader, not the only seer. As specialist in understanding of ends and processes, he is but the leader and not the only one concerned in the thought and judgment of the group.

As leader of the group activities, therefore, he will delegate not merely the routine performance of the various tasks, but also responsibility for thinking and planning the various tasks, without abdicating any of his own responsibility for using his own vision and understanding as a continual corrective. He will give each teacher full initiative for planning every step of his work. He will not give it as a favor or as a concession; he will place it upon them as an inescapable responsibility. He gives it not as a right, but as a duty. All must be done, however, without the slightest abdication of his own heavy

responsibility for the thought and planning of the entire organization. Both principal and teacher will act in obedience to an administrative principle which needs to be kept ever in mind on both sides. It reads somewhat as follows:

In the performance of a complicated task which involves the co-operative efforts of skilled specialists upon different levels of specialization, those nearest the detailed labors to be preformed should be responsible for initiative in proposing the detailed plans of procedure, while those specialists of more general type who stand nearest the ultimate sources of authority should be responsible for approval of the detailed plans before they are put into actual execution.

Reduced to specifics, this means that the teachers should themselves look to the objectives to be obtained, and with their detailed knowledge of their particular pupils and of the specific conditions under which their work must be done, they will plan the details of procedure to be followed, select the materials to be employed, propose the amount of time to be employed, select the textbooks, collateral readings, apparatus, supplies and other material facilities needed, and in general, plan the work as though they bore the total responsibility for the results. On the other hand, the above principle means that plans will not be put into execution until they have been scrutinized in all of their details and implications by the principal to see if they appear to be aiming accurately at the desired objectives, and also whether they are employing the most effective procedure possible. Where plans so conform, he will approve, commend, and bless his teachers for their wisdom and application. Where they fail to conform, however, his vision and understanding must correct each deficiency. In conference and in other ways already referred to, he will exert himself to correct the astigmatic or blurred vision and the fragmentary or biased understanding of the teacher who thus fails in the planning. Under present conditions this

method of performing the directorial function will give the high-school principal plenty of things to do.

Right performance of the directorial function, it will be observed, presupposes the adequate performance of each of the four functions previously enumerated.

6. *The principal as leader will enforce responsible performance on the part of all the specialists to whom he delegates the work.* It is not enough that teachers plan wisely. They must perform. The desired results must appear. And all must be done with a proper expenditure of time, labor, money, and materials. Where an educational system is well organized, the principal is made fully responsible for securing results—with economy. It is his function, therefore, to devise methods of determining the degree of accomplishment within his building, and the degree of economy. This means that on the one hand there must be measurement of results and, on the other, measurement of economy of procedure.

The technique of measuring educational results of the ability-to-act type has been as yet but little developed beyond general estimation, and so little have the activities of the usual high school looked toward the development of specific abilities that we have practically no technique for discovering the degree of economy to be expected in the development of each of the several specific outcomes. Here, also, the work of the principal must at present be largely general judgment. In a few things, only, is it possible at present to assemble dependable facts of a quantitative character.

There is much that the principal can do, however, in the performance of this inspectorial function. In the degree in which his knowledge of the objectives is definite and clear, his general judgment as to the efficiency of members of his organization in holding to these objectives can also be definite and reasonably accurate. In the degree in which he has understanding of proper processes to be employed, he can judge with

reasonable accuracy as to the adherence of his teachers to appropriate procedure. A knowledge of the processes and of the conditions under which they may well be performed will give him pretty accurate ideas as to what constitutes economy of procedure. With clear ideas, therefore, as to the various factors involved, he can do very much indeed by way of discovering the strong and the weak places in the work of the building.

The inspectorial findings do not of themselves enforce responsibility on the part of his followers, but they furnish the grounds for such enforcement. His findings he will translate into performance of three kinds: (1) Where results are all that he can reasonably expect under the circumstances, he translates his findings into commendation and into continuance of the conditions that have brought about such favorable results. (2) For those who have failed in some degree, whether small or great, but who appear to possess powers sufficient for success, he will translate his unfavorable findings into directorial effort. He will help them to see what they have missed and to eliminate their several deficiencies. He will not abdicate his responsibility for leadership and leave them to flounder and escape from their difficulties as best they can. (3) Where findings are unfavorable and where there is sufficient evidence that the individuals responsible have not the capacity for rising to the requisite type of performance, the principal must translate his findings into executive procedure or recommendation to the superintendent for executive procedure by way of removing the teacher and placing a more capable one in his stead. Where all functions are properly performed, such incapable teachers will usually be weeded out rather early in their professional (or subprofessional) career.

THE MEASUREMENT OF PHYSICS INFORMATION

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The degree of care which has been wisely given to the accurate construction and standardization of scales for the measurement of skill and allied factors cannot profitably be employed when constructing measures, which, having a narrower range of application, gauge primarily the amount of information possessed. Such measures are, however, indispensable and must be forthcoming in large numbers if the total work of the schools is to be checked up quantitatively.

The objectives of the study of a science are manifold, ranging from an appreciation of generalized scientific method to the acquirement of the elementary facts. Especially in the initial study of a science the facts and the terminology have to be mastered, for they form the basis upon which further generalization and application rest. While instruction is very incomplete unless the pupil passes beyond the mere phenomena, yet as one essential aim, particularly in the elementary stage, it is necessary to work for a knowledge of the facts of the science. Whether the facts are taught as isolated pieces of information or acquired in the solution of laboratory problems the situation remains that no superstructure can be built until there is a recognized body of information which can be assumed to be the possession of the pupil. From another standpoint—that of detailed rather than general diagnosis—it is clear that the amount of information acquired as the result of instruction will need direct as well as indirect measurement. While the indirect method will seek to determine the

extent to which the pupil can use the information acquired and will gauge his knowledge by success in the final application, we must not overlook the fact that two pupils, neither of whom can solve the problems involved in the indirect measurement, are in a very different state if one knows the isolated facts but fails to apply them, while the other has failed to secure the contributory information.

The object of this paper is to call attention to a method which has probably a wide range of usefulness as a measure of informational achievements. This method has the following merits: (1) it can be used in almost any subject in the curriculum; (2) it is objective; (3) it requires no special material for each pupil except paper and pencil. This last advantage deserves attention; the writer has been much struck with the desirability of constructing in more of the common school subjects devices for measurement which do not require the teacher to procure blanks. When experimenting I have found that teachers are willing and even eager to try out objective tests on their classes when there is no necessity for the procurement of blanks, but when such are indispensable, the expense and effort required seem to exceed the critical point of inertia. The hope of the objective movement in education is to be realized by each teacher using the tests as an aid to instruction, not solely by their application on a large scale, usually under compulsion, by the controlling authorities.

CONSTRUCTION OF THE TEST

The measurement here described is the outcome of several meetings with a club comprising the physics teachers in the public schools of Cleveland. In a previous issue of the *School Review*, January, 1918, the author, with two others, presented the results of a study of the achievement of pupils in elementary mechanics. The interest aroused by this study caused a request for a similar measurement which would cover the descriptive

parts of those portions of physics dealt with in the common school textbooks under electricity and magnetism, light and sound. Instead of constructing the test myself for the purpose of stimulating interest and giving facility in the application of the method, I met with the group on several occasions to explain the general principle of procedure. It was pointed out that each question must fulfil the following requirements—

1. It must apply specifically to the field of knowledge for which the test is constructed.

2. It must be taken from an essential part of the subject which is contributory to understanding or summarizing a general theory or principle. The question, in other words, should be such that a correct answer would indicate that a distinct meaning had been grasped.

3. It must be so worded as not to be ambiguous.

4. It must be so framed that it can be answered very concisely usually in a single word, or at most a short phrase.

5. It must be such that the short answer given in the test includes all possible correct answers.

The above requirements, particularly four and five, which are a necessity for objective measurement, limit the possible questions. It may often happen that a good question has to be omitted for the simple reason that the number of correct answers makes objective marking impossible. A little practice, however, gives considerable facility in the construction of questions which conform to the above requirements and yet reveal the presence or absence of necessary information and understanding. As a result of these meetings several hundred questions were submitted. A selection was made and combined with ten other questions added by the author after reference to several school texts. These facts are mentioned in order to prove that the rough norms of achievements were not vitiated by any possibility of coaching for the examination—the number of questions submitted and the secrecy of the final selection prevented this factor from affecting the results.

TEST IN PHYSICS—ELECTRICITY AND MAGNETISM, SOUND AND LIGHT

The directions for administering the test and the test itself with the correct answers are given below—

DIRECTIONS FOR ADMINISTERING TEST

1. Explain the general nature of the test. Tell the pupils not to take down the question but merely to answer it in a single word or phrase.
2. Dictate each question deliberately twice, and twice only, passing on, after adequate time for writing the answer, to the next problem.
3. Before collecting the papers read the whole set of questions once again.
4. Mark the papers by scoring one point for each answer which covers the essential point given.

PHYSICS TEST IN ELECTRICITY AND MAGNETISM, SOUND AND LIGHT

1. What is the common name applied to the deviation from the true north and south line of a compass needle free to swing in a horizontal plane?
2. What are all the molecules of iron or steel according to the common theory that accounts for magnetism?
3. What kind of positive and negative static electricity is formed on a conductor in the neighborhood of a charge?
4. What is the smallest known electrical charge?
5. What is the quantity of electricity called which passes when one ampere flows for one second?
6. Given the electromotive force and resistance in a circuit, what formula would you use to calculate the current?
7. What is the unit of resistance called?
8. How many conductors are there in the simplest form of condenser?
9. What is the common name of the rotating part of a dynamo, consisting of the coil and its core?
10. How should two cells be connected in order to decrease the internal resistance?
11. What is the common device called which converts the energy of electrical currents into mechanical energy?
12. In what condition is a cell when a film of hydrogen has gathered on the positive plate?
13. What property of a voltmeter prevents it from short circuiting the two lines when connected across?

14. In what form is the energy stored in a storage battery?
15. What instrument is used to pass from a high voltage to a low voltage?
16. What is the chief factor which controls the quality of a tone?
17. With what factor does the frequency of a vibrating string vary directly as the square root?
18. What is the common name applied to the condition of the air in that portion of the wave in which the particles are moving backward?
19. What are caused by a very slight difference in the frequencies of two notes?
20. How many vibrations are there in middle C, international pitch?
21. Give the formula for velocity of sound in terms of wave length and number of vibrations per second.
22. Upon what important phenomenon in light is the conclusion based that light waves are transverse?
23. Through what is white light most commonly passed to produce a continuous spectrum?
24. What do we call the ratio which expresses the speed of light in air divided by its speed in any other medium?
25. What is the common name of instruments used to compare the intensities of two lights?
26. What happens when two waves of light of the same wave length and intensity meet each other in exactly opposite phase?
27. What has been assumed to exist in order to explain the transmission of light from the sun to the earth?
28. If the intensity of light, at a certain distance from a source of light is x , what is the intensity at three times that distance from the source?
29. What is the name of the theory that states that light consists of small particles traveling with enormous velocities?
30. If the object is nearer to the lens than the focal distance, what is the general name applied to the erect and enlarged image produced?

ANSWERS

- | | |
|---|-------------------------|
| 1. Declination | 7. Ohm |
| 2. Magnets (small magnets) | 8. Two |
| 3. Induced | 9. Armature |
| 4. Electron | 10. Parallel (multiple) |
| 5. Coulomb | 11. Motor |
| 6. $\frac{E}{R}$ ($\frac{\text{electromotive force}}{\text{resistance}}$) | 12. Polarized |
| | 13. Resistance |

- | | |
|--|-----------------------------|
| 14. Chemical | 23. Prism |
| 15. Transformer | 24. Refractive index |
| 16. Overtones | 25. Photometer |
| 17. Tension | 26. Interference (darkness) |
| 18. Rarefaction | 27. Ether |
| 19. Beats | 28. $\frac{x}{9}$ |
| 20. 256 | 29. Corpuscular theory |
| 21. nl (number of vibrations \times wave length) | 30. Virtual |
| 22. Polarization | |

PRESENTATION OF RESULTS

This test was given to 158 pupils, boys and girls, of the academic high schools, who were just completing the study of this section of physics; that is, the ground had been covered

TABLE I

| Question | Percentage Correct | Relative Difficulty | Question | Percentage Correct | Relative Difficulty |
|----------|--------------------|---------------------|----------|--------------------|---------------------|
| 1..... | 42 | 3.2 | 16..... | 62 | 2.7 |
| 2..... | 65 | 2.7 | 17..... | 55 | 2.9 |
| 3..... | 31 | 3.5 | 18..... | 41 | 3.2 |
| 4..... | 50 | 3.0 | 19..... | 58 | 2.8 |
| 5..... | 45 | 3.1 | 20..... | 74 | 2.4 |
| 6..... | 92 | 1.6 | 21..... | 72 | 2.4 |
| 7..... | 95 | 1.4 | 22..... | 23 | 3.7 |
| 8..... | 61 | 2.7 | 23..... | 60 | 2.7 |
| 9..... | 70 | 2.5 | 24..... | 44 | 3.2 |
| 10..... | 76 | 2.3 | 25..... | 65 | 2.6 |
| 11..... | 50 | 3.0 | 26..... | 34 | 3.4 |
| 12..... | 49 | 3.0 | 27..... | 63 | 2.7 |
| 13..... | 44 | 3.2 | 28..... | 48 | 3.1 |
| 14..... | 43 | 3.2 | 29..... | 29 | 3.4 |
| 15..... | 59 | 2.8 | 30..... | 59 | 2.8 |

within the present semester ending June, 1919. The results are presented in three tables showing (1) the percentage of pupils getting each question correct; (2) the distribution of scores in the various sections in the schools; (3) the standard scores worked out on the percentile basis.

In Table I the percentage of pupils getting each question correct is shown. In addition, the relative difficulty of each question is recorded on the assumption that a question answered by all the pupils falls at -3.0σ and is of "zero difficulty." If these relative degrees of difficulty are used in computing scores, it cannot be too clearly pointed out that the zero used

TABLE II

| TOTAL SCORE | SCHOOL A | | | SCHOOL B | | | SCHOOL C | | ALL SECTIONS |
|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-----------------|
| | Section <i>a</i> | Section <i>b</i> | Section <i>c</i> | Section <i>a</i> | Section <i>b</i> | Section <i>c</i> | Section <i>a</i> | Section <i>b</i> | |
| 5..... | 1 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 2 |
| 6..... | 1 | ..... | 1 | ..... | 1 | ..... | 1 | 1 | 5 |
| 7..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 2 |
| 8..... | ..... | ..... | ..... | 1 | ..... | 1 | 1 | ..... | 3 |
| 9..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 1 | 2 |
| 10..... | ..... | ..... | ..... | ..... | ..... | 1 | 2 | 1 | 4 |
| 11..... | ..... | ..... | 1 | 1 | ..... | ..... | 1 | ..... | 3 |
| 12..... | ..... | 2 | ..... | 3 | 1 | 1 | 1 | 1 | 9 |
| 13..... | ..... | ..... | ..... | 2 | 1 | ..... | ..... | ..... | 3 |
| 14..... | 2 | ..... | 1 | 2 | 2 | ..... | 2 | 2 | 11 |
| 15..... | 2 | ..... | 2 | 1 | 2 | 2 | 2 | 2 | 13 |
| 16..... | 1 | 1 | 1 | 3 | 2 | 2 | 2 | 1 | 13 |
| 17..... | ..... | 3 | ..... | 3 | 2 | 2 | 1 | ..... | 11 |
| 18..... | ..... | 1 | 1 | 2 | 2 | 2 | ..... | 2 | 10 |
| 19..... | ..... | 1 | 6 | 1 | 1 | 2 | 1 | ..... | 12 |
| 20..... | 3 | 2 | 2 | 2 | ..... | ..... | ..... | ..... | 9 |
| 21..... | 2 | 5 | 4 | 1 | 1 | ..... | 1 | ..... | 14 |
| 22..... | 1 | 3 | 3 | 1 | 1 | ..... | ..... | ..... | 9 |
| 23..... | 2 | 2 | ..... | ..... | ..... | 1 | 1 | ..... | 6 |
| 24..... | ..... | 2 | 1 | ..... | ..... | ..... | 1 | ..... | 4 |
| 25..... | 3 | 2 | 1 | ..... | 2 | ..... | ..... | ..... | 8 |
| 26..... | 1 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | 2 |
| 27..... | ..... | ..... | 2 | ..... | ..... | ..... | ..... | ..... | 2 |
| 28..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 29..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 30..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Median..... | 21.0 | 21.4 | 19.9 | 16.5 | 17.0 | 17.0 | 15.5 | 14.3 | 17.8 |
| No. of cases.. | 20 | 24 | 27 | 23 | 18 | 16 | 17 | 13 | 158 |

is, of course, not an absolute zero, whatever hypothetical power that may designate, but merely what may be called a "zero of non-differentiation" for this group.

In Table II, on the basis of number of correct answers, assuming each question of equal difficulty, the distribution of total scores by section and by school is recorded. Considering the small number of pupils on which the test has been tried, it is hardly worth while to weight the question according to the relative degrees of difficulty.

Table III, gives the tentative norms of performance in percentiles based on the 158 cases in one school system.

TABLE III

| Percentile | Score |
|-------------------|-------|
| Lowest | 5.0 |
| 10 | 10.5 |
| 20 | 13.5 |
| 30 | 15.3 |
| 40 | 16.5 |
| 50 | 17.8 |
| 60 | 19.3 |
| 70 | 20.8 |
| 80 | 22.0 |
| 90 | 24.3 |
| Highest | 28.0 |

WHAT DOES THIS TYPE OF TEST MEASURE?

What significant factors in the knowledge of physics does a test of this kind measure? This a question which it is impossible to answer until the aims of instruction in physics are more clearly defined. Conceivably under present conditions a low correlation with teachers' marks might be a positive recommendation. It was hoped that a comparison of the achievements in this test with the teachers' ratings of the pupils would at least indicate the extent to which the scores in the test corresponded with that unknown product commonly called "physics ability" in the school. Any detailed comparison, however, has been impossible for the following

reasons: (1) the unreliability of teachers' marks; (2) the small differentiation between the semester grades. With the first factor many studies make us familiar; the second factor has not been stressed in spite of its obvious effect on incentives and selection of pupils. For example it is not uncommon for 60 to 80 per cent of the pupils to be graded by a teacher within a range of five points, usually 70-75. It cannot be supposed that this small differentiation is a measurement of the true range of ability of such a large percentage; it rather bears witness to the absence of an adequate knowledge of the pupils' abilities on the part of the teacher assigning a grade. Under this condition physics teachers, to whom numbers mean something, naturally adopt a "playing safe" policy.

On the basis of the report on the semester's grade, the three highest and the three lowest from each section have been taken to form two groups—the best and the worst. The corresponding scores of the two groups were 21.3 and 11.7. This furnishes very meager evidence as to the suitability of this type of test, but the author, from a large amount of evidence obtained when engaged in army work, is convinced that tests of this kind are well worth trial when employed for the limited purpose for which they are designed.

It is with pleasure that I acknowledge my indebtedness to the physics teachers of Cleveland including also Mr. C. W. Sutton and Mr. J. B. Welles of the Division of Reference and Research.

CHARACTER AND VALUE OF STANDARDIZED TESTS IN HISTORY¹

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INTRODUCTION

The quantitative movement in such school subjects as spelling, arithmetic, algebra, and handwriting has turned attention to the need for objective devices in the field of history. Complexity of subject-matter and differences in teacher-judgment make it desirable to construct devices that will enable one to score and mark various types of history exercises with more precision than is possible under the present examination system. The purpose of this article is (1) to acquaint the teacher of history with the existing test material; (2) to point out in some detail the general features of the tests; (3) to describe some of their defects; and (4) to discuss the value of the movement.

EXISTING TESTS IN THE FIELD

At present there are eleven tests that aim to measure some phase of history. With few exceptions they have not been well standardized. Those that are merely in a tentative state are included, however, to indicate the general tendencies of the measuring movement in this subject. The writer presents in summary form the salient features of the eleven tests in the field (see pages 768-69). Only four of the authors of the above-mentioned tests have published their investigations.

¹ Paper reported to history section at University of Chicago Conference of Secondary Schools, May, 1919, and to social science section at High School Conference of Illinois, November, 1919.

GENERAL FEATURES

A majority of the tests in history have made use primarily of facts or information of a historical nature; the assumption is that the readiness with which students answer factual questions is a measure of a thing called historical ability. The tests are, from the point of view of psychology, purely associational. For example, Sackett asks the student to name a writer, painter, orator, general, etc., noted in ancient history; then again he asks the significance of such terms as "The Battle of Tours," or "The Age of Pericles." Bell requires the pupil to give the important event occurring in 1861, 1789, 1620, 1492, etc., to state such things as the important principle of each political party, and to name the great epochs or movements in American history. Harlan, Rayner, and Starch, in a different type called completion tests, demand that the student insert in spaces purposely left blank the correct responses to certain historical information. The material in these exercises is so arranged that the insertion of responses in these blanks forms a historical narrative. Davis has devised another type different from the two described above. He suggests several possible responses and asks the student to underline the answer that he deems to be correct; i.e., "The Mayflower was a hall, chapel, hotel, plant, ship." In general all of these thus far mentioned involve only elementary associational facts.

The tests of Buckingham, Van Wagenan, Barr, and Rugg are more complicated, for in these the pupil is called upon to react to more intricate mental processes such as thought, reasoning, historical inference, and judgment. Buckingham made the first step beyond the testing of facts when he worked out an investigation which showed rather a marked correlation between the ability to think and the ability to remember in

history.¹ To ascertain this he gave a series of thought questions of which the following is a sample:

For many years after the coming of Columbus, explorers wandered about in the forests of the new world, and paddled their canoes up and down the great rivers without thinking very seriously of colonization. What were they thinking about and what were they trying to do?

Another sample of the thought questions is taken from the Van Wagenan, series *B*.

A hundred years ago it took a letter several days to go from New York to Boston; today it takes only a few hours. Why do you think it took letters so much longer to go from New York to Boston one hundred years ago than now?

Dr. Van Wagenan has introduced the judgment factor by including in his tests a series on "character judgment." In this type the student's conception of a personage is obtained by quoting a historic passage depicting some act of this person and then asking the student to underline out of eight or nine suggested adjectives three which best describe the character of that act. Thus, he quotes the rudeness of Secretary Stanton in tearing up a note from President Johnson presented by Mrs. Clay, wife of an imprisoned Confederate general. The pupil underscores three of the following that best describe Stanton's action: rude, callous, generous, courteous, tactful, cautious, thoughtful, sympathetic, insolent, and considerate. Barr in his diagnostic tests attempts to measure such things as historical comprehension, inference, and constructive imagination. His plan is similar to Van Wagenan's in that he quotes a historical passage and asks responses in the form of questions. Preliminary results indicate the possibility of these diagnostic tests, but, as Mr. Barr asserts, the material must be carefully revised and given to a much larger group before actual predictions can be made. Similarly, the writer has made a prelimi-

¹ *School and Society*, V (April 14, 1917), 443-48.

nary study of historical judgment. He tested chronological, causal, and critical judgment. A tabulation of the results obtained from one hundred and sixteen students in Oak Park High School indicates the feasibility of measuring this factor. These tests give various classes of events such as social, political, and military. The pupil is asked to number them 1, 2, 3, etc., in the order in which they appear from the point of view of time. Again in critical judgment he is asked to mark various types of historical books which will indicate the readiness with which he can distinguish texts, source accounts, biography, etc. Causal judgment seeks to discover the ability of the pupil to pick out the response of several suggested that relates best to the causative element. The problem is to show experimentally that history trains the judgment. The tests in this group are illustrations of the fact that the tendency is to attempt measurement of the more intricate historical outcomes. Summarizing, then, we find two distinct types of tests in the field of history: (1) those that make the ability to answer factual questions the primary end, and (2) those that are concerned with the measurement of the higher mental processes, namely, thought, reasoning, imagination, inference, judgment.

GENERAL CRITICISMS OF EXISTING TESTS

1. Turning to an examination of the results secured from giving these factual tests in classroom work one finds that pupils do not retain a great deal of historical information.¹ Therefore, the assumption that the readiness with which pupils answer historical questions measures historical ability should be, at least, qualified. In fact, the writer doubts the validity of the assumption because of its primary emphasis upon mere memory.² The dominant aim should be not to memorize historical

¹ This assertion is made after the following tests were tried out in my own classes in the Oak Park High School—Bell, Sackett, Starch, Harlan, and Davis.

² G. C. MYERS, "Delayed Recall in History," *Journal of Educational Psychology*, VIII (May, 1917), 275.

content but to give the child as wide an experience with the world as possible. Dr. Bobbitt in his book on *The Curriculum* points out that we must not hold the child for detailed facts. He urges that the child be permitted to absorb through wide reading as varied and vicarious an experience as is possible to obtain. Dr. Horn, another curriculum maker, corroborates this point of view in support of the theory of social utility. This is his criterion on which to construct the course of study. It means that the course must be devised to meet the needs of the child, either in future school life or as an adult. Considered from this aspect, much of the content included in the factual tests is obsolete. This standard of social utility would also cast doubt upon the validity of a theory where facts are held to be the chief end. Even more conclusive are the actual experimental investigations reported by some of the authors of these tests. Thus, Bell found that 668 high-school pupils retained only 33 per cent of the historical information called for in his test. Five hundred and fifty pupils in the three upper grades of the elementary school could answer only 16 per cent of the same set of questions. It should be noted, however, that detailed facts, such as those found in the tests discussed, are not in themselves of value. These facts must be the means of arriving at an understanding of the structure of society. Advocates of the social studies today desire that the child obtain an appreciation and understanding of his environment. They demand that the world be made socially intelligible to him. Historical facts should be but the media of arriving at this end.

2. Many of the tests are faulty because they do not embrace content vital to the course of study. Some of these authors have shown unfamiliarity with the recent tendencies in this field in that they have included content that is not taught at present. Progressive teachers are agreed that the present must be stressed to a far higher degree than it has been in past years. Thus ancient history as a required subject appears to be

doomed.¹ Moreover, the tendency is now that the child should not be held for the detailed facts in a text. Hence, details such as are found in the above tests should be omitted. Such questions as, Who was Mithridates? What was the date of the invasion of the Saracens into Spain? or When was the New Haven colony founded? are isolated facts that fail to aid the child in understanding modern society.

However, to be constructive in respect to vital content we must ask, What historical material is vital to the course of study? and What shall be our criterion for determining its value? First, content is vital to the course of study that gives the child an appreciation of the structure of modern society. This does not mean that all history must be necessarily recent. An appreciation of this age is obtained partly from a study of the development of things in the past. One must become conscious of the evolution of civilization—that society is an organism and is growing. But content to be included must have definite relationship to things of the present time. Secondly, our criterion should be the social needs of the child either in school or as an adult. The course should represent the most important of the needs of the community selected from the habits, ideals, skills, information, etc., found by an analysis of the community.² The importance, frequency of occurrence, or the cruciality of such needs will determine largely what material is desirable. For example, an analysis of political platforms of parties has brought to light recurring problems such as the tariff, finance, interstate commerce, and immigration. Certainly these must be known in order that the child understand things about him today. On the other hand, knowledge of how to restore respiration in case of drowning is an example of including content on the basis of cruciality.

¹ See report of the Committee on History and Education for Citizenship, *Historical Outlook*, May and June, 1919. This committee recommends four years of social studies, two of which shall be history. In the tenth year modern history shall be given, at least one semester of which shall be from 1789 to date. The other year shall be American history in its broader sense, to come in the eleventh year.

² The writer is indebted to Professor Horn for this theory of social utility.

Future tests are concerned with this problem because such exercises must measure content that is of fundamental importance to the child.

3. A majority of the exercises do not test the basic aims or outcomes of history. True it is that we have not as yet shown experimentally what are valid aims. Tabulation of some sixty books, articles, and courses of study, as well as two question blank investigations which discuss aims of the subject, may be grouped as follows: (1) facts; (2) training for citizenship; (3) training certain powers such as imagination and judgment; (4) inculcating within the child a sense of patriotism; (5) broadening the pupil's point of view; (6) training in seeing causal relationship. Moreover, training in sound habits of study should be included. It is obvious that these are opinions which in some instances could be called aims of the other school subjects. They are indicative of what history teachers have in mind as objectives. The writer accepts them tentatively as the basis of tangible outcomes—at least, until we can prove them. We must, however, have objective evidence on the questions whether history does train the judgment, whether it creates sound habits of study, and whether it broadens one's point of view. It is also his conviction that in presenting various phases of the course one must keep constantly in mind some particular aim or purpose. Only in this way can one tell with any degree of accuracy what results are being achieved. The entire methodology hinges on this point. Construction of standardized tests—examinations—for each aim is the only objective means of ascertaining exactly how many of the above or of other asserted aims are practicable. It seems that few of the writers of the tests under review were conscious of this fundamental problem. We have seen that several are built upon the assumption that ability to answer historical information portrays historical ability. I have already commented upon the invalidity of this theory. Also it has been pointed out that several have attempted to measure other outcomes aside from facts.

The problem before those interested in the testing movement in this field is to demonstrate what are the objectives of historical instruction.¹ Then will quantitative evidence prove to us what we should aim to do in teaching this subject.

4. Another defect of these exercises is that a majority of them include historical material covering the entire course, i.e., in American history from 1492 to the present. This makes the administration of the tests before the end of the school year impossible. Dr. Davis has sought to remedy this trouble by using material only on one period. He takes the colonial period. It seems to me that this is very fundamental. All testing to be valuable must be done at the crucial time. The teacher is concerned week by week, month by month, with the fact of how much of the course is grasped by the students. In fact, examinations are usually drawn up to test comprehension of a given epoch or movement. Periodic tests are but examinations that are standardized; hence the desirability of obtaining objective evidence as to the degree that a given period is understood. This plan is preferable because one must mark the pupils for home reports periodically and because it aids in determining pupil and class difficulties. Of course, one must also devise a test covering the entire course. This latter is essential for the final review.

5. Most of these exercises discussed here are so brief from the point of view of content that where available or known to the teacher of history for any length of time it would be almost inevitable that such material would be stressed in presenting the work day by day. It is obvious that results obtained in this manner would be valueless. To forestall this possibility each test must be designed so that it will include several sheets of material. For example, they can be labelled series *A*, *B*, *C*, etc. Question 1 on series *A* can be made to compare in type

¹ It should be noted that most of these investigations reported are given in such technical language that they are beyond the grasp of the history teacher not trained in statistical interpretation. On the contrary, these investigations should be reported in simple language.

and in difficulty with question 1 on the other series. Similarly each succeeding question will involve material of the same degree of difficulty, series by series. Such a plan will make the exercise a test of ability, not an "exhibition" performance.

6. Several of the exercises under review may be criticized from the point of view of organization. This fault is particularly evident in the completion tests. They, in the main, are concerned merely with whether the pupil can insert battles, dates, events, personages, and place locations in the blank spaces provided. In short, they stress facts as ends in themselves, but we have pointed out that facts should be used as means to an end. Moreover, in the completion exercises guesswork is likely to creep in. Experimental investigation shows that students make a low percentage of correct associations with historical material involving time sequence and place location. Where these elements are mixed in with personages, political events, etc., the student cannot distinguish the type of response desired. Hence, it is essential that the organization as to type of answer required be clear-cut. For example, the blanks involving time sequence should be marked off distinctly from those involving battles, place location, political events, and social movements. One can still retain the narrative form for the test, but its organization is more easily grasped by the pupil by following the suggested plan.

7. These exercises have not been scored or graded in such a way that they comprise an accurate guide in marking the papers of the teacher of history. Her time is limited and if she is to be urged to use such tests, the problem of scoring must be made simple and accurate. We know from various investigations that teachers vary widely on the question of grading papers accurately. These studies have shown how difficult it is for even the conscientious teacher to mark accurately. Particularly is it hard to do in the complex subjects like history where judgment is intricate and opinion almost bound to creep

in. Familiarity with the theoretical distribution of pupil abilities according to the normal curve, or even the use of the best papers in the class as samples, will not enable one to determine exactly whether question 1 should receive the same percentage as succeeding questions. In fact, the probability is that some questions are much harder than others. Therefore, to grade with precision the teacher needs to know that a question is worth, three, five, or eight points because several hundreds or even thousands of pupils have answered it with that average in the past. It has been demonstrated in other school subjects that standardized tests can be constructed so that the value of each question is known and is printed along beside the question.

On straight information questions it is relatively easy to assign scores or marks. However, with the more intricate questions where opinion and evidence on the point disagree, the response is infinitely more complicated. Here the score is likely to be only approximately accurate. For example, one would obtain many varying opinions from a class on the question, Why did the English colonial policy succeed while that of the French failed? where one merely asked for a brief written answer. The problem of ascertaining which of these answers is true is colored by many considerations. Most important of all is the problem of scoring various answers, assigning to each its proper credit. Therefore, I sought to avoid this difficulty in testing causal judgment by making a positive statement as the causative element and then suggesting several responses indicative of possible effects. It should be noted that each of the questions had been scored by the pupils in a preliminary way to determine relative difficulty. With the arrangement outlined above, the pupil was asked to check the answer that he deemed showed the best causal relationship. For example:

The English colonial policy succeeded while the French policy failed because

1. The English were better farmers than the French.
2. The climate in the English colonies was better.
3. The natural resources were more suitable.
4. The English pursued a policy of permanent settlement. →
5. The English government at home was better.

This checking plan of grading the more complex outcomes possesses value because it excludes varying responses difficult to grade correctly, and because it is possible to tabulate the answers more quickly and accurately. Such tabulation diagnoses pupil and class difficulties. It is, then, by using the above-mentioned plan that the teacher will secure exact standards for grading papers. Moreover, she will be enabled to mark the papers more easily and in far less time than under the present system, thus cutting down the rather arduous paper work.

VALUE OF THE TESTING MOVEMENT IN HISTORY

In closing, the writer wishes to stress the value of these standardized exercises in the field of history. One must admit that there are obvious limitations to their use. Moreover, there will be many who say that we cannot measure such complex processes as those found in the study of history. However, it is the conviction of the writer that our judgment and grading of pupil reaction will, at least, be refined through the use of these tests. They are valuable, first, to check the basic aims and outcomes of this branch of the social sciences. It has been my contention throughout this article that a final statement of aims and outcomes will not be established until experimental evidence proves the temporary statement practicable. The wide disagreement, together with the vague commonplaces found in the articles on aims and outcomes of history, indicates that there is no real evidence yet to point to what the history teacher should strive to do or what the pupil should strive to attain. However, no teacher ought to be permitted to go through a course without being forced constantly to ponder, at least, on such questions: Why should this subject be taught?

| Name | Title | Where Reported | Type |
|-------------------------------------|--|---|--|
| 1. Sackett, L. W..... | "A Scale in Ancient History" | <i>Journal of Educational Psychology</i> , VIII (May, 1917), 284 ff. | Informational |
| 2. Bell, J. C. and McCullum, D. F.. | "A Study of Attainments of Pupils in United States History" | <i>Journal of Educational Psychology</i> , VIII (May, 1917), 257 ff. | Informational |
| 3. Harlan, C. L..... | <i>Tests for Information in American History (Series A)</i> | Write author, University of Minnesota, Minneapolis, Minnesota. | Informational Completion |
| 4. Starch, D..... | <i>American History Test</i> | Write author, University of Wisconsin, Madison, Wisconsin. | Informational Completion |
| 5. Buckingham, B. R. | "Correlation Between Ability to Think and Ability to Remember" | <i>School and Society</i> , V (April 14, 1917), 443-48. | Thought |
| 6. Davis, S. B..... | <i>Tests in United States History—Colonial Period</i> | Write author, University of Pittsburgh, Pittsburgh, Pennsylvania. | Informational Colonial period |
| 7. VanWagenan, M. J. | <i>Scales in United States History</i> | Write Bureau of Publications, Columbia University, New York, New York. | Informational Thought Character judge |
| 8. Raynor, W. H..... | <i>American History Test</i> | Write Bureau of Educational Research, University of Illinois, Urbana, Illinois. | Informational Completion |
| 9. Barnard, A. F..... | <i>Test in Roman History</i> | Write author, University High School, University of Chicago, Chicago, Illinois. | Informational Completion |
| 10. Barr, A. S..... | <i>Diagnostic Tests in United States History</i> | Write author, at 19 S. LaSalle Street, Chicago, Illinois. | Informational Thought Reasoning Judgment |
| 11. Rugg, E. U..... | <i>Tests for Historical Judgment</i> | Write author, Oak Park High School, Oak Park, Illinois. | Judgment |

SUMMARY SHEET

| Type | Kind of Questions | General Comment |
|--------------------------|--|---|
| Informational | Men-events, dates, battles, persons, map locations. | Not so valuable because it deals with content fast disappearing from required courses. Reported in too technical a manner. |
| Informational | Men-events, men-events, historical terms, political parties, division of history map study. | Most valuable of existing tests on old chronological history which has as its end salient facts of the traditional course. Good review work at the end of the year in the want of standardized exercises period by period. Should include more material in series form. Probably the best of the completion type. Organization clearer; some content should be omitted. Results unpublished though test is available by writing author. |
| Informational Completion | Personages, historical terms, events, places, hypothetical conclusions, uses and results. | |
| Informational Completion | Sixty-nine blanks into which pupils insert information similar to above. | Elementary content; rather poorly organized. Possesses value in that there are several series, precluding possible "boning up" for test. Investigation unpublished; tests may be obtained from author. |
| Thought | Memory questions used only to measure ability in history. Can develop individual memory demanding reasoning. | Elementary facts given in New York and Madison, Wisconsin, to prove relationship of ability to think and to remember in history. First to make use of thought. Results show rather marked correlation. |
| Informational Completion | Pupil underlines correct answer of several suggested on fifty questions of colonial period. | Also is working on reading problem in relation to history. Important. Excellent in that it makes possible review on one period. Based upon Bagley's investigation of elementary history. Attempts to standardize questions. Still in preliminary stages. |
| Informational Thought | Thirty-two sheets on these three types. Quotes a history passage and then asks questions. | Most elaborate investigation; Ph.D. thesis, Columbia. Performances of several thousand children tabulated. Tests available for use. First to make use of judgment. Possible objection of expense of so much material preventing their wide use. |
| Informational Completion | Material similar in organization to Starch test. Based upon Bagley's analysis of elementary histories. | Question here based upon Bagley's investigation of school histories. Test available. Could find no report of an investigation by the author. |
| Informational Completion | Detailed facts upon one period of Roman history. | Preliminary test on one period of ancient history. Not valuable because tendency is away from ancient history. It is doubtful if books used now include such details. Not at all standardized. Used by author in his classes. |
| Informational Thought | Test for historical inference, selection of facts, causal relationship, imagination. Quotations and answers. | Very preliminary tests on 125 University of Chicago High School students to diagnose variously asserted historical abilities. Merely shows possibility of measuring some of the more complex outcomes. Author revising them. |
| Informational Thought | Involves judgment of chronology, cause and effect, and ability to distinguish historical material. | Very preliminary tests for historical judgment given by writer to 116 Seniors in Oak Park High School. Results of the preliminary tests indicate that it is possible to test judgment. Tests will be carefully revised and given thorough tryout next spring. Writer intends to standardize questions so that percentages may be assigned each question. |

Of what use is this bit of content? Does it function in the needs of the pupils? By what means can I discover whether it is of value? Attempts to answer these questions will unearth shortcomings and deficiencies. Then will the critical teacher seek some means to eliminate them. Tests will be found to be objective devices to check up valid aims and outcomes.

A second use of these devices is the improvement that they will bring to classroom instruction. As mentioned in the preceding paragraph, attention to shortcomings tends to cause their removal. But the mere realization that something is wrong, for example, that the pupils fail to grasp time sequence, is of no consequence unless the teacher has some objective means which will reveal these defects clearly. A tabulation of the performances of a class that has taken the test will show not only individual but also class difficulties.¹ It was by the method outlined in the footnote that the writer ascertained just what points in the tests under review in this article were hardest. It was shown that the classes had no clear conception of time sequence and of place geography. Knowing this, my classroom instruction was changed so that these points would receive especial attention. Moreover, it enabled me to diagnose the points of difficulty of the individual pupil. The work of the teacher should consist largely in showing students how to study. Still experiments in supervised study have demonstrated that many teachers fail in this part of their work. The reason commonly assigned is that the teacher, presumed to know correct habits of study, cannot introspect to the extent of being able to tell others how she herself studies. There are those, also, who cannot do it because they themselves have poor study habits. Trite phrases such as "fails to grasp subject" or "works irregularly" on report cards are of no value to the

¹ By using cross-section paper one may tabulate results of a test quickly and accurately. Write student's name on horizontal lines at left of paper, the question at top, vertically. This will enable one to tell what an individual pupil has accomplished and also will reveal class difficulties.

supervisor, principal, parent, or even the pupil himself in helping any plan that any of the above may wish to use in solving this fault. But to state clearly and in some detail concrete things to do as means of grasping a subject will help to eliminate the above phrases. Showing pupils how to study is the primary function of the teacher. Therefore, she should not be content until she has at her command every method, bit of technique, tool, and device that will enable her to teach students how to study. Standardized history tests or examinations have their place in this connection.

To summarize their value, tests in the field of history will improve classroom instruction because they can be given and scored easily; they are objective, being based upon the performances of enough pupils to enable one to foretell the percentage of correct answers to each question; they reveal class and individual differences, not only aiding in shaping the review work to some definite end, but also being of service in showing pupils how to study. Moreover, when designed on the principle of social utility—i.e., to include only content which is of proved social worth to the child—they will tend to organize the course of study around the essential experiences.

SUMMARY

This article has attempted to present considerations concerning (1) the existing tests in the field of history; (2) general criticisms of them; and (3) their value to the lay teacher of history. Such exercises are but a start toward the solution of the problem, for they are not well standardized as yet, nor are they organized around the vital content of the course. However, they are of value in that they point the way by showing us the method of attacking the problem and by indicating that such devices possess utility to the progressive teachers of history because such exercises enable one to test the aims and outcomes of this subject, and because they will aid in improving classroom instruction in the manner outlined above.

DIFFERENTIATING INSTRUCTION IN NINTH-GRADE ENGLISH

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In 1918-19 the ninth-grade pupils of the University of Chicago High School were placed in accelerated, medium, and slow classes for the purposes of instruction, which was differentiated and adapted to their respective needs. At the end of the first week, the children were distributed on the basis of a series of tests¹ into six classes, each class composed of pupils of approximately the same level of accomplishment in English. Although all pupils were given each of the tests, the three classes which met at eleven o'clock were distributed solely on the basis of reading accomplishment, and are called throughout this article Reading Sections A, B, and C; the three classes which met at nine o'clock were distributed solely on the basis of language accomplishments, and are here designated Language Sections A, B, and C. The administrative device of assigning the class meetings of the three reading sections at eleven o'clock and the three language sections at nine o'clock

¹ Tests used in October—

a) Rate of silent reading: three ten-minute periods in Community Leaflets: (1) No. 8, Lesson B-9, *How Men Made Heat to Work*; (2) No. 1, Lesson A-2, *The Western Pioneer*; (3) No. 1, Lesson A-3, *The Co-operation of Specialists in Modern Society*. Department of the Interior, Bureau of Education, October and December, 1917.

b) Comprehension: (1) *Reading Test: Understanding of Sentences*, Form B, 11-17-1M. University of Minnesota Bureau of Co-operative Research, Minneapolis. (2) *Standardized Silent Reading Test*, Test III, Form II, State Normal School, Emporia, Kansas. (3) A ten-minute essay by each pupil after the second-rate test upon the topic: What of importance have you learned about settling on the frontier?

c) Spelling: (1) Twenty-five words from eighth-grade list of the Ayres' Spelling Scale. Leonard P. Ayres. *A Measuring Scale for Ability in Spelling*, p. 59. (2) Spelling ability as revealed in the essay of the third comprehension test.

d) Grammar: (1) *Starch Grammatical Scale A: Educational Measurements*, p. 101. (2) *Noyes Language Test*, E. Louise Noyes, Highland Park, Illinois.

e) Fluency and general effectiveness in written composition: An estimate by an expert reader on the basis of A, B, and C ability of the essays written in the third comprehension test.

was necessary in order to shift pupils from a better to a poorer section, or vice versa, as time revealed occasional errors in the original groupings, and as individual pupils showed marked improvement or retrogression. During the year it was found necessary to change fifteen pupils from one section to another.

An attempt was made, first, to place pupils in the reading sections wholly on the basis of rate of reading. This method was found impracticable inasmuch as the slow group thus attained included some pupils who ranked highest in comprehension. Grouping was finally accomplished by putting into Reading Section C only those pupils who read fewer than twenty pages in thirty minutes and who ranked moderately low in comprehension. Reading Section A was organized by grouping together rapid readers who were also unusually strong in comprehension. In Reading Section B were placed a number of "skimmers," whose rate was exceedingly rapid, but whose comprehension was relatively inferior. This grouping of pupils immediately defined a number of instructional problems for each group.

The language sections were grouped primarily on the basis of the total number of errors made by each pupil in four language tests. It is recognized that there is objection, as in most examinations, to the adding together of various types of unweighted errors. However, in this instance the procedure appeared partly justified by the main purpose, which was to estimate the relative accomplishments of the various pupils rather than their actual accomplishments. It must be understood that in forming the reading sections, scores which pupils made in the language tests were ignored entirely; likewise in forming the language sections, scores made in rate and comprehension in reading were neglected. Several interesting side-lights upon the correlation between reading ability and language control appear in the discussion.

INDIVIDUAL DIFFERENCES IN RATE OF READING
REVEALED BY THE TESTS

The tables which follow present the distribution of scores in the various tests made by the pupils as they were finally placed in the six sections. It should be said here that in February, at the end of the semester, there was given a second series of tests, comparable in difficulty with the October series.¹ Table I shows the October and February records in rate of silent reading in terms of the number of pages of simple expository prose read in thirty minutes, in three periods of ten minutes each. The number of pages read appears in the left column; figures within the remaining columns indicate the number of pupils who, in the various sections, read the pages designated at the left. Extreme difference in rate shown in the table indicates that in thirty minutes the slowest reader covered 10 pages, the most rapid, 41; 12 pupils read 15 pages or fewer, while 9 read 30 or more. It is evident that such wide variations in rates of reading complicate the problem of instruction in all classes, as well as in English groups. An assignment which is appropriate for the rapid readers of a class requires too much time for the slower readers. It is advantageous both to the slow and to the rapid readers if they are associated with pupils of approximately equal ability in regard to rate.

¹ Tests used in February—

a) Rate of silent reading: three ten-minute periods in Community Leaflets: (1) No. 5, Lesson B-10, *Telephone and Telegraph*; (2) No. 5, Lesson B-7, *Intelligently Selected Diet*; (3) No. 5, Lesson B-5, *Saving the Soil*. Department of the Interior, November and December, 1917.

b) Comprehension: (1) Thorndike's *Improved Scale for Measuring the Understanding of Sentences*, Scale Alpha 2. (2) *Standardized Reading Test*, Test III, Form III, State Normal School, Emporia, Kansas. (3) A ten-minute essay by each pupil after the third-rate test upon the topic: What have you learned about the wise choice of food?

c) Spelling: (1) Twenty-five words corresponding in difficulty to the Ayres' Spelling List used in October, taken from "An Experiment in Spelling," *School and Society*, V (March 10, 1917), p. 299. (2) Spelling ability as revealed in the essay of the third comprehension test.

d) Grammar: (1) *Starch Grammatical Scale A* repeated, see p. 772. (2) The *Noyes Language Test*, duplicated exactly in language principles involved, but new content substituted, *Ibid*.

e) Fluency and general effectiveness in written composition: An estimate by an expert reader on the basis of A, B, and C ability of the essays written in the third comprehension test.

TABLE I
DISTRIBUTION OF READING RATES

| NUMBER OF PAGES READ | READING SECTIONS | | | | LANGUAGE SECTIONS | | | |
|----------------------------|------------------|-----------|-----------|-----------|-------------------|-----------|-----------|-----------|
| | C | B | A | TOTAL | C | B | A | TOTAL |
| | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. |
| 10..... | .. | .. | .. | .. | .. | I | .. | I .. |
| 11..... | 2 | .. | .. | 2 | I | .. | .. | I .. |
| 12..... | I | .. | .. | I | .. | .. | .. | .. .. |
| 13..... | .. | .. | .. | .. | .. | I | .. | I .. |
| 14..... | I | .. | .. | I | I | .. | .. | I .. |
| 15..... | I | .. | .. | I | I | I | .. | 3 I |
| 16..... | I | I | .. | 2 I | .. | 2 I | .. | 2 I |
| 17..... | 4 | I | .. | 5 | I | 2 | .. | 3 .. |
| 18..... | 5 | I | .. | 7 | I | 3 2 | I | 5 2 |
| 19..... | 3 2 | .. | .. | 3 2 | 2 | 3 I | 3 | 8 I |
| 20..... | I | I | .. | 3 I | 2 | I | .. | 4 .. |
| 21..... | .. | 2 | .. | 3 I | 2 I | I I | 3 | 6 2 |
| 22..... | .. | 3 | .. | 5 I 8 | 3 2 | .. | 2 2 | I 5 3 |
| 23..... | .. | I | .. | I I 2 I | I | .. | I 2 | .. 3 I |
| 24..... | .. | 3 I | .. | 4 2 5 5 | I | 3 I | 2 2 | 2 4 7 |
| 25..... | .. | 3 4 | I | .. | I 4 5 | 2 4 I | 2 | .. I 3 7 |
| 26..... | .. | 4 | .. | 2 3 2 3 8 | .. | 2 2 2 | 2 I | 4 5 |
| 27..... | .. | 2 2 2 | .. | 3 2 7 | I | I I | 2 | .. I 2 4 |
| 28..... | .. | 2 | .. | I 2 3 2 | .. | I I | 2 2 | 2 3 5 |
| 29..... | .. | .. | I | .. | I | I 2 | .. | 4 I 7 |
| 30..... | .. | .. | .. | I | .. | I | 2 I | 2 I 5 |
| 31..... | .. | .. | .. | I | .. | .. | I | .. I 2 |
| 32..... | .. | .. | .. | I | .. | .. | I I | 2 I |
| 33..... | .. | .. | I | .. | I | .. | .. | I I I |
| 34..... | .. | .. | .. | I | .. | .. | I | .. I 2 |
| 35..... | .. | .. | I | .. | I | .. | .. | I .. I |
| 36..... | .. | I I | .. | .. | I I | .. | I | 2 |
| 37..... | .. | .. | .. | .. | .. | I | I I | I I 3 |
| 38..... | .. | .. | .. | .. | .. | .. | I | I |
| 39..... | .. | .. | 3 | .. | 3 | .. | .. | .. .. |
| 40..... | .. | .. | .. | .. | .. | .. | 2 | .. 2 |
| 41..... | .. | .. | I | .. | I I | .. | .. | .. .. |
| 42..... | .. | .. | 2 | .. | 2 | .. | .. | .. .. |
| 43..... | .. | .. | I | .. | I | .. | .. | .. .. |
| 44..... | .. | .. | .. | .. | .. | .. | .. | .. .. |
| 45..... | .. | .. | 2 | .. | 2 | .. | .. | .. .. |
| 46..... | .. | .. | .. | .. | .. | .. | .. | .. .. |
| 47..... | .. | .. | .. | .. | .. | .. | .. | .. .. |
| 48..... | .. | .. | 3 | .. | 3 | .. | .. | .. .. |
| 49..... | .. | .. | .. | .. | .. | .. | .. | .. .. |
| 50..... | .. | .. | 2 | .. | 2 | .. | .. | .. .. |
| No. tested | 19 19 | 20 21 | 20 18 | 59 58 | 19 17 | 23 27 | 23 22 | 65 66 |
| Median... | 17 25 | 24 39 | 23 27 | 22 27 | 21 25 | 19 26 | 23 29 | 21 27 |

Table I indicates that the October median rates of all of the sections for all the pupils of the reading groups and for all of the language groups are practically the same, 22 in the former case, 21 in the latter. This fact coincides with what is usually found when a teacher measures the rate of reading of a number of high-school classes, namely, that pupils of each class vary widely in their rates of reading and that the median rates of a number of classes are approximately the same. It is to be recalled, however, that in the present experiment a combination of ability in rate and comprehension was used for selecting the reading sections, and that neither rate nor comprehension was considered in the grouping of the language sections. The median scores in Table I show, moreover, that Reading Section C, with its class rate median of 17, was composed of very slow readers. Rate medians of the three language sections, C-21, B-19, and A-23, apparently fail to disclose marked correlation between rate of reading and attainment in the mechanics of language.

DIFFERENCES IN COMPREHENSION

The three comprehension tests were calculated as follows: an essay test, which required each pupil to write in ten minutes what he considered to be the important contribution of an easy passage just read, was graded in terms of A, B, C, and ranks of 3, 2, 1 were given to the various letter grades. Scores secured through the Minnesota Test and the Monroe Test were converted into four groups, in each case the highest fourth of the scores being given the rank of 4, the second fourth 3, the third fourth 2, and the lowest fourth 1. Ranks of each pupil in the three tests were added with resulting comprehension indexes varying from 3, the lowest, to 11, the highest, as indicated in the left-hand column of Table II. For the reading groups the October median comprehension score of C-5, B-6, and A-9+, indicates startling differences, especially

between the C and the A sections. It is interesting to note that the correlation between language ability (the grouping index of the language sections) and comprehension apparently is very high—C-5, B-7, and A-9.

TABLE II
DISTRIBUTION OF COMPREHENSION SCORES

| COMPREHENSION INDEXES | READING SECTIONS | | | | LANGUAGE SECTIONS | | | |
|--------------------------|------------------|-----------|-----------|-----------|-------------------|-----------|-----------|-----------|
| | C | B | A | TOTAL | C | B | A | TOTAL |
| | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. |
| 3..... | 2 | 1 | .. | 2 | .. | .. | .. | .. |
| 4..... | 3 | 3 | 1 | .. | .. | 1 | 1 | 1 |
| 5..... | 5 | 5 | 2 | 1 | .. | .. | .. | .. |
| 6..... | 3 | 3 | 7 | 2 | .. | 5 | 10 | 10 |
| 7..... | 5 | 5 | 6 | 3 | 3 | 1 | 14 | 9 |
| 8..... | 1 | 2 | 2 | 5 | 4 | 4 | 7 | 11 |
| 9..... | .. | .. | 1 | 5 | 3 | 5 | 4 | 10 |
| 10..... | .. | .. | 1 | 2 | 9 | 4 | 10 | 6 |
| 11..... | .. | .. | .. | 1 | .. | 1 | .. | .. |
| Number tested.. | 19 | 19 | 20 | 20 | 20 | 20 | 59 | 59 |
| Median... | 5 | 6 | 6 | 8 | 9+ | 8 | 7 | 7 |

DIFFERENCES IN LANGUAGE ABILITY

Table III indicates the records made by each group in the two spelling tests, the *Noyes Language Test* and the essay test. The column at the left designates the number of errors, and the figures in other columns the number of pupils, by sections, guilty of the respective numbers of errors. The table shows wide variations. Three children made 6 or fewer errors, and 6 made 40 or more errors; 12 made 10 or fewer; 25 made 30 or more. In Language Section A were placed 24 pupils whose median language error was 11, in Section B, 25 whose median was 22, and in Section C, 21 whose median was 31. The members of the latter section, then, were more or less illiterate; those of the first section very strong in the language skills. In Reading

TABLE III
DISTRIBUTION OF LANGUAGE ERRORS

| NUMBER OF ERRORS | READING SECTIONS | | | | LANGUAGE SECTIONS | | | |
|------------------------|------------------|-----------|-----------|-----------|-------------------|-----------|-----------|-----------|
| | C | B | A | TOTAL | C | B | A | TOTAL |
| | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. | Oct.-Feb. |
| 6 or fewer | .. .. | .. .. | I I | I I | .. I | .. .. | 2 I | 2 2 |
| 7..... | .. .. | .. .. | .. I | .. I | .. .. | .. .. | I 2 | I 2 |
| 8..... | .. .. | .. .. | I .. | .. I | .. .. | .. .. | I .. | I .. |
| 9..... | .. .. | .. .. | .. I | .. I | .. I | .. .. | I 3 | I 4 |
| 10..... | I .. | .. .. | .. .. | I .. | .. 2 | .. I | 5 2 | 5 5 |
| 11..... | .. I | .. .. | .. I | .. 2 | .. .. | .. .. | 3 2 | 3 2 |
| 12..... | .. .. | I I | .. I | I 2 | .. I | I I | I .. | 2 2 |
| 13..... | .. .. | I .. | 4 2 | 5 2 | .. .. | .. .. | 2 2 | 2 2 |
| 14..... | 2 .. | .. I | I .. | 3 I | .. .. | .. 2 | .. 2 | .. 4 |
| 15..... | .. I | .. .. | I .. | I I | .. .. | .. I | 2 2 | 2 3 |
| 16..... | .. I | 2 I | I .. | 3 2 | .. I | .. 3 | 3 I | 3 5 |
| 17..... | 2 .. | I I | I 3 | 4 4 | .. I | 3 I | I .. | 4 2 |
| 18..... | .. 2 | .. 4 | I 2 | I 8 | .. .. | I I | I .. | 2 I |
| 19..... | .. .. | 2 .. | 3 .. | 5 .. | .. .. | 4 2 | .. I | 4 3 |
| 20..... | .. I | I 2 | .. 2 | I 5 | .. I | .. 2 | I I | I 4 |
| 21..... | I I | 2 2 | 2 .. | 5 3 | .. I | .. I | .. .. | .. 2 |
| 22..... | I .. | 2 .. | I I | 4 I | 2 I | 4 2 | .. I | 6 4 |
| 23..... | I .. | I .. | .. .. | 2 .. | 2 .. | 4 2 | .. I | 6 3 |
| 24..... | 3 .. | I I | .. 2 | 4 3 | .. .. | 3 .. | .. .. | 3 .. |
| 25..... | .. .. | .. 2 | I .. | I 2 | .. .. | 2 I | .. .. | 2 I |
| 26..... | .. I | 2 I | .. .. | 2 2 | .. .. | 2 .. | .. I | 2 I |
| 27..... | .. .. | .. .. | I .. | I .. | 2 2 | .. .. | .. .. | 2 2 |
| 28..... | I I | I I | .. .. | 2 2 | 2 2 | .. 4 | .. .. | 2 6 |
| 29..... | .. .. | .. I | .. 2 | .. 3 | I .. | I .. | .. .. | 2 .. |
| 30..... | .. I | 2 .. | .. .. | 2 I | I .. | .. .. | .. .. | I .. |
| 31..... | I .. | .. .. | I .. | 2 I | 3 .. | .. .. | .. .. | 3 .. |
| 32..... | I I | .. .. | I .. | 2 I | 3 .. | .. .. | .. .. | 3 .. |
| 33..... | .. .. | I .. | .. .. | I .. | .. 2 | .. .. | .. .. | .. 2 |
| 34..... | .. I | I .. | .. .. | I I | I .. | .. .. | .. .. | I .. |
| 35..... | I I | .. .. | .. .. | I I | I .. | .. .. | .. .. | I .. |
| 36..... | .. I | .. .. | .. .. | .. I | .. .. | .. .. | .. .. | .. .. |
| 37..... | .. .. | .. .. | .. .. | .. .. | .. .. | .. .. | .. .. | .. .. |
| 38..... | .. I | .. I | .. .. | .. 2 | .. .. | .. .. | .. .. | .. .. |
| 39..... | I .. | .. .. | .. .. | I .. | .. I | .. .. | .. .. | .. I |
| 40 or over. | 3 4 | .. .. | .. .. | 3 4 | 3 .. | .. .. | .. .. | 3 .. |
| Number tested.. | 19 19 | 21 21 | 20 19 | 60 59 | 21 17 | 25 24 | 24 22 | 70 63 |
| Median... | 24 28 | 22 20 | 18 17 | 21 20 | 31 20 | 22 20 | 11 13 | 22 17 |

Sections A, B, and C, the language error medians of 18, 22, and 24, respectively, indicate a moderate degree of correlation between language attainment and reading ability. The Starch Grammar Test, which was scored in terms of attainment rather than of error, was but incidentally considered in the distribution of the language sections as confirming whether pupils on the border lines between groups should be placed higher or lower.

INSTRUCTION IN READING SECTION C

The main purpose with this group of poor readers was to determine and to overcome fundamental weaknesses in the mechanics of reading and to give specific training in improved habits of study.

The problem of oral reading received early attention, because it has been found in earlier investigations that effective habits of silent reading cannot be established until the pupils have attained fluency in the mechanics of reading. That pupils in Reading Section C were very deficient was shown by the results of a standardized oral reading test in which the class median was 46, as compared with an average of 57 made in the same test by a seventh-grade class in the University Elementary School, and as compared with a normal standard of 60 for a ninth-grade class. Attention was called to special types of errors and a few days were devoted to intensive drill. Other tests revealed marked inability in pronunciation, accent, and syllabification. To remedy these difficulties the class studied guides to pronunciation and diacritical marking, and were given extended practice in the rapid recognition and pronunciation of lists of words as well as of marked words in selected prose passages. Drill exercises in syllabification and accent were used abundantly.

The training just described should be given in elementary schools. However, it is important that high-school teachers

test Freshmen systematically to determine their attainment in these lines. Remedial measures to overcome the weaknesses disclosed should be used. If pupils go forward into their higher years seriously handicapped, they are certain to waste much time and energy; they will not be able to study independently and effectively.

In order to provide the class with appropriate instruction in habits of reading for the purpose of study, a careful survey was made, through the co-operation of several teachers in the school, of the various ways in which pupils are required to use reading ability in the preparation of their lessons. Ten of the more important, in which Reading Section C received instruction, are:

1. Determining the central idea or fundamental principles.
2. Determining the main outline of an article.
3. Determining and organizing the principal points and supporting details.
4. Interpreting and remembering for the purpose of reproducing what is read.
5. Analyzing the content of the reading into its essential parts.
6. Following directions with reasonable speed and accuracy.
7. Determining the validity of statements or inferences.
8. Drawing valid conclusions from data or statements.
9. Finding facts in material which will aid in the solution of a problem or in answering questions.
10. Gaining a clear comprehension of the essential conditions of a problem.

Training in determining the principal idea of a selection was begun by laboratory analysis of several paragraphs. Pupils were asked to state in writing some of the methods which should be followed in finding a central thought. These suggestions, supplemented by suggestions of the instructor,

were summarized, mimeographed, and placed in the hands of the pupils for use in assignments immediately following. Then there followed a period of alternating drills and tests in which the grades in percentage were posted conspicuously from day to day that each might see his progress.

A similar inductive approach was made for each of the other nine elements of good reading for the purpose of study. Independent, critical, constructive attitude of each pupil toward the content of the printed page was always emphasized. Of course the work of the semester did not relate wholly to drill in reading and study. A considerable portion of the time was spent in spirited discussions about the content of what was read, and numerous other problems usually emphasized in an English class were touched upon. It was found, however, that pupils gained in ability to handle such problems about in proportion as they learned to overcome the mechanical handicaps in reading discussed above, and as they gained in the ability to attack study problems intelligently and independently.

INSTRUCTION FOR LANGUAGE SECTION C

With this section the primary aim of instruction was to establish correct habits in using the mechanics of writing by means of motivated drill exercises. Spelling received constant attention, each pupil keeping a list of the words he misspelled; frequent laboratory periods were spent in proofreading exercises to develop the minute care which must be the main reliance of an habitually poor speller; many sentence dictation exercises for spelling were given; there was a careful review of the more important rules of spelling and occasionally both oral and written competitions in spelling.

Similar procedure was followed in the use of capital letters and in punctuation. Indeed, the work may be characterized as an intensive review of details not mastered by these pupils in the grades. Language principles studied were reduced to

minimal lists which were mimeographed and placed in the hands of the pupils, constant endeavor being made to lead each to master his special shortcomings. Brief themes, written almost daily in class, enabled the drill exercises to be definitely correlated with practice, accompanied by the progressive marking of papers for typical errors. Definite progress was expected, and the grading of papers was clearly understood as being done in view of the pupil's progress from his initial efficiency.

During the second half of the semester, grammar received the major emphasis, though drill in spelling and punctuation was continued. Only the simplest and most essential uses and constructions were discussed, such as the parts of speech, the syntax of phrases and clauses, the principal parts and modifications of the verb (except infinitives and participles in their more difficult uses), the comparison of adjectives and adverbs. The purpose in this intensive review was to give just enough nomenclature and technical knowledge in order that the pupils might talk intelligently about their own observation of correct principles in writing and speaking. A printed outline of the minimum essentials furnished opportunity for asking pupils to supply as many examples as possible for various parts, the grammars thus constructed being inspected at stated intervals and collected at the close of the semester for grading.

INSTRUCTION GIVEN MEDIUM GROUPS

Exactly what the instructors anticipated came to pass, namely, that teaching materials and methods were most difficult to manage for the medium groups. One slow group needed especially drill in the elements of expression; the second slow group was exceedingly deficient in reading; the accelerated groups, composed of approximately literate children who were also proficient readers, quite apparently needed

abundant content reading. But the instruction suitable for the average children was not so obvious. For the two medium groups reading projects of comparatively simple content material were selected: a nature project for which the class books were Muir's *The Boyhood of a Naturalist* and Mill's *The Story of a Thousand Year Pine*; a community life project with Keller's *The Story of My Life* and Antin's *At School in the Promised Land*; and a life in New England project with Hawthorne's *Grandfather's Chair* as the class book. In the classroom, shelves of supplementary reading were filled for each successive project; for New England life, Earle's *Customs and Fashions in Old New England*, Crawford's *Old Boston Days and Ways*, and Abbott's *Old Paths and Legends of the New England Border* are typical non-fiction selections, while Austin's *Betty Alden*, Tomlinson's *Three Colonial Boys*, and Altsheuler's *Son of Saratoga* are typical of the fiction selections.

Methods of instruction included the endeavor to foster careful reading for the heedless readers, teaching them to read for information upon very definite problems, and to be critical of the important features of the various books read. Oral composition, largely in the form of topical recitations carefully organized and prepared through oral practice, occupied a large portion of the laboratory time. Many of these oral talks, having been carefully prepared for that purpose in outline form, were used as the basis of weekly compositions. Such written work was supplemented by much writing in class which was used as the basis of scrupulous self-criticism for language corrections. Throughout the work two grades were given for every piece of written work, one for substance and spirit and one for mechanics of writing and of expression.

INSTRUCTION FOR THE ACCELERATED GROUPS

The A sections, composed of pupils distinctly in the upper third of the class both in language accomplishments and in

reading ability, were entirely freed from participation in the routine drill exercises to which they would have certainly been subjected in mixed classes. Drill for pupils who do not need it is certainly waste. Time thus saved was spent in extensive group and individual readings organized on the basis of projects. For example, in one of the most successful, a myth and legend project, the class books were Hawthorne's *Tanglewood Tales*, Peabody's *Old Greek Folk Stories*, and Shumway's *The Nibelungenlied*, in all, 650 pages of class reading. In this project, as the others, provision was made for abundant reading by supplying the shelves of the classroom library with about one hundred books paralleling the major interest of the project. Typical books were: Church, *Heroes of Chivalry*; Wheeler, *Russian Wonder Tales*; Curtis, *Fairy Tales of Eastern Europe*; Yeats, *Irish Fairy Tales*; Joyce, *Old Celtic Romances*; Anderson, *Japanese Fairy Tales*; and Lanier, *Knightly Legends of Wales*.

As has been intimated, the primary purpose of the experiment with the accelerated groups was to determine the effect of unusually wide independent reading of material concerning which the pupils' interests and attention would be primarily in content rather than in literary and artistic merit. The amount of reading the children did, much of it quite apart from their "English study," was unusual. Records kept by the instructor in the myth and legend project showed an average per pupil of 1,400 pages of supplementary reading. A school project, for which Antin's *At School in the Promised Land* was the chief class book, did not elicit such wide interest, 700 pages being the average amount of reading volunteered.

It is quite evident that quantitative reading was the major aim of this instruction: an endeavor to place children in situations that they might read schoolbooks with the same avidity with which at this age children often devour books of far less merit. To this end an attempt was made constantly

to maintain group or community interest in every child's reading. Always the aim was to find something new to interest or instruct the group from books within the general project, but not read by the group. Moreover, class discussions and laboratory exercises were constantly directed toward the technique of securing from a variety of books and sources information about a central theme or problem. For example, in the myths project the classes decided to look in their home reading for:

1. What folk lore has in common: nature goods, story of the flood, deification of good and evil.

2. The individual qualities of lore of different countries.

To the technique of securing information about a definite objective was added constant work upon problems usually found in third- and fourth-year classes; for example, skilful organization of material for effective written and oral presentation. Each pupil was required to hold himself constantly ready, without definite assignment, to report either orally or in writing upon some phase of his reading of importance to the group. His duty was to make clear the type of material, the general interest, and any detailed facts which would add to the total of class interest. Time saved by the omission of unnecessary drill was expended in teaching them to arrange ideas under general headings, building up a larger unity of thought by well-related parts. For the first time the instructor really met a class for all of whom small points of punctuation, spelling, grammar, and usage might rightly be kept purely incidental.

It may be added that during the second semester the accelerated groups were placed in charge of a teacher of civics and community life who is also an expert teacher of English. For one semester their work in the mother tongue was thus the incidental training that is found in a content subject taught by topical written and oral method. This year, in their sopho-

more year, the pupils of these groups are being given an intensive course in American literature. The corresponding accelerated groups of the present ninth-grade class are this year placed in charge of the civics instructor during the first semester, and will be given the American literature in the second semester of the freshman year, while the medium groups will be under his instruction in the second semester. The slow groups are being given a combination course in reading and in language drill during the first half of the year. During the second half they will have the same training as the medium groups of 1918-19.

RESULTS

As has been said, in February, 1919, the entire grade was given a second set of tests, which through experimentation were found to be approximately equal in difficulty with the October tests. An examination of Table I indicates that the class median for thirty minutes of silent reading increased from 21 to 27. All sections increased their rate. The anticipation that because of its intensive training Reading Section C would show a relatively greater increase in rate than the other sections was not realized. But Reading Group C at the beginning was woefully deficient; to have brought it up approximately to the class median was considered satisfactory. Reading Section B, presented the extraordinary increase from a median 24 to a median 39. This may represent a loss, but it is at least partly accounted for by the fact that a number of this section had previously read some of the materials used in the second rate tests.

Table II shows the changes in comprehension during the semester. The scores, based on ranks, do not represent absolute growth; they indicate merely the change in relative position in each section. Medians show clearly that Sections C and B of the reading groups gained in rank, while A lost. Of the

language groups C and B gained, while A remained the same. It is pertinent to recall that the two A sections at the opening of the semester were as proficient in reading skill as the average adult. It will also be recalled that only in Reading Section C was instruction definitely pointed toward improved comprehension and rate. The results might seem discouraging, because this section did not improve more than the corresponding language section. Explanation probably lies in the fact that instructors who taught respectively Sections C, B, and A of one group taught also the corresponding sections of the other group. In all sections there was much reading done; it is fair to assume that the point of view and methods of instruction emphasized in the C Reading Section were probably utilized in the corresponding language section, though no special effort was made to do so.

The effect of the semester's training in language mechanics is shown in Table III. In October, 130 pupils were examined with a resulting median of 22 mistakes in four language tests. During the semester 8 pupils dropped out, leaving 122 only to take the February test, in which the resulting median error was 19. On the whole this is a distinct and satisfactory gain, though not at all startling. The language sections showed a slight superiority in rate of improvement, the median error dropping from 22 to 17, while the reading sections dropped from 21 to 20. Reading Section C, not trained at all in language details, showed a marked decline from a median of 24 to 28, while Language Section C, drilled very extensively in language details, showed the marked improvement from 31 to 20. One of the A sections showed a slight advance, the other a small decrease in the command of language mechanics.

Apparently the experiment indicates that intensive work may bring illiterates up to a class level. But it must be remembered that in order to accomplish this purpose Language Section C was deprived of very much instruction by which

other sections profited. It may be remarked parenthetically that instruction during the second semester reversed content and methods for the two C sections, thus giving the slow groups one-half year in reading drill and the other one-half year in language drill.

No contention is made that a satisfactory technique of differentiated instruction has been perfected, but most certainly one inexcusable error has been avoided. Pupils who cannot read very simple expository prose understandingly and economically have been spared the farce of studying classics far beyond their powers of comprehension. At the other extreme, ninth-grade pupils whose native and attained language ability ranks well with the average high-school senior are spared the deadening effect of participation in language drill which for them is worse than wasted time. If the objection be raised that this ninth grade was not taught literature, the reply is that the only group ready for literature as it is usually taught was given a half-year course in belles-lettres, and that all of the groups were reading materials and using reading methods which approximate the needs of everyday life.

Educational News and Editorial Comment

EDUCATION IS A STATE FUNCTION

A board of education is a state body. Its duties are to the larger community and not to any section. This fact is not always kept in mind by politicians who for corrupt motives raid school systems. A stinging rebuke was administered by the courts to the city officials of Chicago who have been attempting for some time to prostitute the schools to political control. In the decision ousting the second Thompson board of education, the court is so clear on the general principle of state control of schools that it will be helpful to school officers to have the section of the decision dealing with this matter. It is as follows:

The *School Review* is published monthly from September to June by the University of Chicago. It is edited and managed by the Department of Education as one of a series of educational publications. The series, including also the *Elementary School Journal* and the *Supplementary Educational Monographs*, is under a joint editorial committee and covers the entire field of educational interests.

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Section 1, Article 8, of the Constitution of 1870, reads as follows: "The General Assembly shall provide a thorough and efficient system of free schools whereby all children in this state may receive a good common school education." This mandate runs to the legislature of the state and it is, of course, fundamental that the duty thus imposed upon that body cannot be delegated to any other body or to any person or persons. Under Section 128, the Mayor of the City of Chicago had the right to appoint, and it was his duty to promptly appoint, eleven school board members to fill the vacancies existing in the eleven offices created by said section, and these members when their appointments had been confirmed by the Council, had the right to come together and to perform the duties imposed upon them by the said Act, but the legislature did not, and could not, under our Constitution, confer power upon the Mayor or the said members to create or to bring into existence "a new Board," "a new body politic and corporate . . . to have charge of the schools."

The Board of Education of the City of Chicago is an agent of the state created by the legislature (by reason of the said mandate in the Constitution of 1870) for the sole purpose of performing certain duties in the maintenance of a system of free schools within the City of Chicago. It is a body created *nolens volens* by the general law of this state to aid in the administration of the state government and charged as such with duties purely governmental in character. The Board of Education of the City of Chicago mentioned in the Act of 1917 is the Board of Education of the City of Chicago mentioned in the Act of 1909 and prior Acts. It was a quasi-corporation before the Act of 1917 (*Kinnare vs. City*, 171 Ill. 332). The latter Act gives the Board a corporate entity and makes certain specified changes as to the powers and duties of the Board, its number of members, their terms and qualifications, etc.; the form of the board is slightly changed but the body remains the same; the character and purpose of the body remains the same; though clothed in a slightly different uniform, it is the same agent of the state now as it was before the passage of the Act of 1917.

SUPERVISION OF PRIVATE SCHOOLS

One of the grossest evils in the educational practices of the United States is to be found in the lax attitude of communities toward private schools, especially parochial schools. The quality of instruction in some of these schools is doubtless low. The curriculum is often meager. Statistics of atten-

dance are not to be had. During the war there was a general recognition of the menace to American institutions from the failure of some of these schools to teach English and to give proper emphasis to matters American. On the other hand, there can be no doubt that the school systems of almost every large American city would be absolutely bankrupt if it were obliged to provide for the schooling of children who now attend parochial schools.

There is a measure of remedy for the whole situation which is easy of adoption, fully in accord with the spirit of democratic promotion of initiative, and safer by far for the public than the present practice of most states. The territory of Hawaii has given a striking illustration of the familiar fact that the new community often has the most progressive legislation. The law regarding private schools provides:

Any person desiring to establish a private school within the Territory of Hawaii shall, prior to the establishment thereof, make application in writing to the department of public instruction of the Territory, which application shall be signed by the applicant or applicants and shall state in substance (1) the name or names of the persons desiring to establish such schools; (2) the proposed location thereof; and (3) the course of instruction and the languages in which such instruction is to be given.

Upon the receipt and approval of the application, the department of public instruction shall issue to the person or persons applying therefor a permit in form to be by it approved, authorizing the establishment of such school; and no private school shall be established within the Territory except in conformity with this chapter.

Upon the receipt of such statement and approval by the department of public instruction of the course of study and instruction given, the department of public instruction shall issue to the person or persons in charge of said school a certificate, in form to be by said department of public instruction prescribed, recognizing such school as a private school within the meaning of this chapter.

Attendance at any school established or maintained without complying with the terms of this section shall not be considered attendance at a public or private school within the meaning of this chapter.

The department may, from time to time, require regularly established private schools to submit reports in such form as it may deem proper. Failure to comply with the provision of this act shall constitute an offense punishable, upon conviction, by a fine not exceeding \$10 for each offense.

Every private school shall be subject to the supervision of the department. It shall be the duty of the department to require that teachers of private schools be persons of good moral character, and that the premises of such schools comply with the rules and regulations of the department as from time to time promulgated with regard to sanitary conditions and hygiene.

The English language shall be the medium and basis of instruction in all public and private schools within the Territory, and any school where English is not the medium and basis of instruction shall not be recognized as a public or private school within the provisions of this chapter, and attendance thereat shall not be considered attendance at school in compliance with law: *Provided, however,* That where it is desired that another language shall be taught in addition to the English language, such instruction may be authorized by the department by direct order in any particular instance.

EXTRAVAGANCE AMONG HIGH-SCHOOL STUDENTS

The temptations in any high-school community to indulge in extravagance of dress and social expenditure are greater than in the ordinary adult community. Adolescence is a period of extreme susceptibility to social suggestion. Furthermore, the economic status of the average high-school student is above that of the average citizen. The result is that examples of unnecessary expenditure are readily followed and in many cases a situation develops which makes it altogether intolerable to the poor pupils who cannot keep up with the pace.

Various devices have been adopted in the attempt to cope with the situation. Academic gowns have been substituted for graduation dresses. School uniforms have been suggested. Advisers of girls have discussed matters of dress with individual pupils. Still the situation persists. An attempt to deal with the matter in a fundamental way through instruction is reported in the following circular letter sent out by the Savings Division of the United States Treasury:

A firm stand against extravagant and costly wearing apparel among the school boys and girls has been taken by the educators of the West. Superintendents of public instruction of California, Utah, Nevada, Idaho, and Washington recently met in California and determined to establish at once in every public school throughout the western states a permanent course in thrift. This course will be graded exactly as is instruction in arithmetic, geography, or grammar and upon a plane with those studies.

In a declaration of principles, the educators made this announcement: "Extravagance in dress, manifested in many ways, but especially in the purchase of silk hosiery, silk shirts, neckties, and expensive footwear must be checked. To this end we recommend that school principals and teachers insist upon reasonable economy and modesty in dress and appeal to parents and pupils to co-operate in an effort to check such extravagance."

The state superintendents not only determined on regular thrift courses in all public schools but arranged to establish savings societies as laboratories for thrift in every schoolroom of the elementary and high schools. They also drafted a memorial to the federal government urging the continuation of the Thrift and War Saving Stamp campaign as a permanent policy and its elaboration by the issue of penny, nickle, and dime thrift stamps.

The declaration of principles adopted by the superintendents says in part: "In the interest of the future citizenry of America, we, the state superintendents of public instruction in the Twelfth Federal Reserve District appeal to our people to do everything in their power to discourage and check extravagance, and by precept and example to aid the schools in the teaching of thrift. We urge upon school officials and teachers the necessity for the teaching of thrift as a patriotic duty and as a means of meeting this great social and economic crisis."

BIBLE INSTRUCTION

There is in operation in Toledo, Ohio, a plan of co-operation between the public schools and certain religious workers whereby week-day instruction in the Bible is offered to school children. The circular issued for the year 1919-20 gives information about the scope and purposes of these courses. Further information can be secured from C. M. Brunson, 423 Nicholas Building.

The fourth year for these schools will open during the week of September 29. Two courses will be given for the grade pupils. One course will

be for the pupils of the third and fourth grades, and another for pupils of the fifth and sixth. The course for the fifth and sixth follows the one given last year, covering the period of the Great Leaders and Kings of Israel. The course for the third and fourth years will be a study of great characters of the Bible with special reference to their moral and religious influence.

HIGH-SCHOOL COURSES

The two courses for High School credit will be offered again this year—The Life of Christ and Hebrew Prophets.

LAST YEAR

| | |
|---|-------------|
| Total number of classes..... | 26 |
| Total number of teachers..... | 26 |
| Total number of pupils..... | 710 |
| Total number completing course..... | 615 |
| Money subscribed for this work covering the next four years.... | \$18,000.00 |
| Cost of maintaining the school for 1918-19..... | 1,050.00 |
| Estimated cost for coming year..... | 4,500.00 |

SOME MATTERS OF INTEREST

The committee is planning to care for 1,500 pupils this year.

The teachers of last year, for the greater part, are expecting to teach again this year.

The teachers of these schools are nearly all ex-public school teachers. All teachers are paid for their services.

Ten High School students have completed the two-year course and received High School credit toward graduation.

A number of the Public School Principals secured the enrollment in their schools last year. A fine spirit toward this movement prevails among the principals and teachers in general.

PLANS FOR ORGANIZING

Pastors and Committees on religious education from the various churches will be invited to a meeting to be held Tuesday, September 23. At this time fuller announcements will be made.

Enrollment blanks will be given to the pastors, who will secure enrollment at the churches, and to our teachers, who will go to the school buildings to secure enrollment.

The nearest available churches to the school buildings will be used for the classes.

Since the available funds will care for not more than 1,500 pupils, the communities showing an active interest first will be first cared for.

OBJECTS

To take the Bible to the door of every public school in Toledo.

To give every child in the public schools of Toledo an opportunity of enriching his life with the wisdom and inspiration of the greatest book of the world. (About 40 per cent of children enrolled are not attendants at any Sunday school.)

To contribute to the nation-wide reconstruction movement a plan which will solve the difficult question of moral and religious instruction in connection with the public school. To attempt to give this instruction in the public school means to exclude many children from the Americanizing influences of the public school.

To equip the future teachers of Sunday schools and kindred organizations with a fundamental knowledge of the Bible.

To engender a feeling in the child that his knowledge of the Bible is as important as any other branch pursued in school.

There can be no doubt that there is a widespread and persistent demand for Bible study which is in no wise met by the Sunday schools conducted by churches. The Toledo plan is evidently organized with clear recognition of the difficulties in the way of such an enterprise. The securing of properly qualified teachers is a serious problem. The planning of a systematic curriculum is a difficult undertaking. The location of classes both as to place and time must be considered very carefully. Evidently the Toledo plan is experimental but is developing, as indicated by the figures reported. It will be the duty of some properly constituted educational agency to collect information soon on the results of this experiment and other similar experiments in other cities.

 GIRLS' CLUB

Oak Park and River Forest Township High School, Oak Park, Illinois.—Girls' Club organized in 1916 to promote better school spirit among the girls and to attack school problems. The Girls' Club Council, appointed by the principal, consists of ten Seniors, five Juniors, three Sophomores, and two Fresh-

men. These girls are selected for general school standing. Leaders from the most representative girls in the school are thus chosen to direct the club policies. There is one faculty adviser. The council nominates from its number, candidates for president, vice-president, secretary, and treasurer. All Sophomore, Junior, and Senior girls vote on election day. Every girl in school is counted a member, and it is one of the few clubs that Freshmen and Sophomore girls may be interested in. There are no dues; the funds are raised by entertainments, donations, etc.

Two types of activity are followed: (1) those pertaining directly to school problems; (2) those which broaden the interest of the girls in larger community affairs. Of the first, the following represent some of the club activities: (1) two "get together parties," Senior-Sophomore, Junior-Freshman, given in September by the upper-class girls to lower-class girls to promote a democratic and friendly spirit in the school; (2) "Clean-up Week" campaign, waged against carelessness in the treatment of halls; (3) a cordiality committee, which sees that girls entering from other schools become acquainted; (4) giving the annual athletic dance under high-school management; (5) frequent discussion of live school problems at the regular meetings, tending to direct the thinking on those problems in the proper channels.

Activities of the second type include the following: (1) promotion of interest in community affairs by such speakers as Mary McDowell and Mary Bartelme; (2) active leadership in Red Cross work during the war; (3) clothing and food drives for local charity; (4) clothing furnished a young colored girl attending the university; (5) the adoption of French orphans.

The club develops leadership, initiative, reliability, and democracy; it provides opportunity for translating good impulses into action; it provides an interest for every girl.

ESSIE CHAMBERLAIN

News Items from the School of Education of the University of Chicago

PRELIMINARY ANNOUNCEMENT OF THE CHICAGO DINNER

The annual University of Chicago Dinner which occurs each year during the week of the meeting of the Department of Superintendence of the National Education Association will be held at 6:30 P.M., Tuesday, February 24, 1920, in the Electrical League Dining-Room on the fourteenth floor of the Statler Hotel, Cleveland, Ohio.

Anyone who has attended the University, either during summer quarters or the academic year, is most cordially invited. A more detailed announcement of the dinner will be made in the next issue of the *School Review*.

PHYSICAL ACTIVITIES FOR ALL PUPILS

"Every boy in the game" is the motto of the Physical Education Department of the University High School. In order to carry out this idea the boys of the high school are organized into twelve soccer teams with a definite schedule of games. Of the 205 boys registered in the high school, 190 are playing regularly. Of the fifteen who are not on the teams, thirteen are physically incapacitated, and two find it necessary to work after school.

The secret of such figures can be traced to (1) the interesting character of soccer football as a game for high-school boys; (2) a gradual development of intramural sports during the past few years; (3) a four-year physical education requirement; (4) a system of after-school athletic activities; (5) good athletic fields and a reasonable budget for equipment; (6) a man constantly in charge not only of the major activities of the

department but also of the detailed work; (7) firm support by the principal and faculty.

What is being done this fall through soccer will be repeated during the winter through basket-ball and track, and during the spring through baseball and track. This schedule makes it possible to have practically every high-school boy engaged in physical activities of a vigorous and healthful character.

A SOPHOMORE ENGLISH LABORATORY

An experiment in teaching students to enjoy reading was tried last year in the Sophomore classes of the University High School in the form of what was called the Sophomore English Laboratory. During the reading periods the students were seated somewhat informally about a room in which were book shelves containing about five hundred books.

A student found on these shelves the latest books on aircraft, invention, engineering, camp life, nature, history, biography, and interesting stories connected with the various countries of the world. The room was organized and conducted so that an atmosphere of restfulness and leisure, which is essential for pleasure-reading, prevailed. During two regular class periods each week, the students came to the room for the purpose of reading what they liked. Each student chose a general theme to follow in his reading for a month. For example, some pupils read about French life and stories in connection with their study of French; others read *The Standard Bearer* and *A Friend of Caesar* in connection with their Latin work; while other pupils chose reading projects related to science, industry, community life, etc. When each project was finished a report was made to the class, and frequently somewhat pretentious papers were written as summaries of their readings. One result of the experiment was an increased interest in reading and a development in many cases of a reading habit, as evidenced by the increased amount of reading which the pupils carried on independently.

Educational Writings

I. A BRIEF BIBLIOGRAPHY OF TESTS IN HIGH-SCHOOL SUBJECTS

In the October number of the *School Review* an article described the work of a committee on results in the University of Chicago High School. Reference was made in this article to the bibliographies worked out by the various departments. A number of requests for them have since come to the chairman of the committee, and it was decided to publish these bibliographies in order to make them available to the readers of the *School Review*. They supplement and bring up to date the bibliographies given in the *Seventeenth Yearbook of the National Society for the Study of Education*, Part II, and in the announcement of the Bureau of Educational Research, University of Illinois, 1918-19.

MATERIAL ON TESTING IN HIGH-SCHOOL LATIN

H. F. Scott

The Henmon tests.—The amount of published material relative to testing in Latin is not large. Perhaps the most carefully constructed tests now available for the purpose of measuring the results of high-school Latin are those of Professor V. A. C. Henmon, of the Department of Education of the University of Wisconsin. These tests and the method followed in their preparation are described in full in "The Measurement of Ability in Latin," *Journal of Educational Psychology*, VIII (November and December, 1917), 515-38, 589-99. They consist of two main parts, the first dealing with vocabulary, the second with translation.

First, a tentative vocabulary test was prepared by selecting fifty Latin words and fifty English words which were found in the exercises of four widely used first-year Latin books. These were given to 252 pupils in ten different schools, and the results carefully scored for the purpose of determining the relative difficulty of the words. A second vocabulary was then made up by taking the words which were common to thirteen beginners' books of

wide use and of recent date, the number of such words amounting to 319. From this list all words not occurring in each of the three authors, Caesar, Cicero, and Vergil were dropped, reducing the total to 239. The vocabulary thus selected was given as a test in nineteen schools located in three different states. In a study of the results, the words were scored with relation to the frequency of error, and a scale value determined for each. A number of words were found to be unsatisfactory, either because they were difficult to score, or because the form suggested an English meaning, or because they were so easy as not to be missed at all by third- and fourth-year pupils. These words, amounting to thirty-nine, were rejected from the original list and the remaining 200 were arranged in four groups giving almost exactly the same total for the sum of the scale values of each group. These four lists, or any one of them, appear to furnish a satisfactory basis for testing a pupil's knowledge of vocabulary at the end of the first year or any time thereafter.

For the purpose of measuring the ability of pupils to translate, two lists of Latin sentences were prepared which employed only words found in the list of 239 words described above. The first test thus arranged consisted of thirty sentences. When these were given to the pupils of seventeen schools, the results proved that there were too few easy sentences for first-year pupils. A second list of fourteen easier sentences was then prepared, but even this was found to contain too few sentences sufficiently easy to serve fully the desired purpose. From these two lists there were selected two groups of ten sentences, each having almost exactly the same total of scale values, arranged in the order of their difficulty. A third group was formed in which all of the ten sentences included had approximately the same scale value. Professor Henmon does not regard the results as entirely satisfactory for the reason that the sentences of the third group are more difficult for first-year pupils than is desired. The method of preparation, however, seems to be sound, and the tests are of value.

The Hanus tests.—Another set of carefully prepared tests is described by Professor Paul Hanus of Harvard University in "Measuring Progress in Learning Latin," *School Review*, XXIV (May, 1916), 342-51. Their purpose as stated by Professor Hanus is "to measure the growth in power in three elements of Latin assumed to be fundamental—vocabulary, translation, and grammar—and also to ascertain what correlations exist between these phases of growth."

Four vocabulary lists of fifty words each were arranged, no word in which occurs less than one hundred times in Caesar and Cicero. In the use of the test as described by Professor Hanus, equal values were assumed for

all the words. A scale of values based on the frequency of occurrence was given, but no attempt was made to score the results on this basis.

The translation test comprises ten sentences of moderate difficulty to which values were assigned on the judgment of those who prepared the test. No construction is employed which occurs less than five hundred times in Caesar and Cicero. The method by which the vocabulary for the sentences was chosen is not described, and it is not made clear by examining them. Some words are used which do not occur in the two hundred words of the vocabulary previously described.

Ten questions in grammar are given, based on the sentences for translation, five dealing with case and five with mood.

While the method of organization is not so exact in these tests as in those prepared under the direction of Professor Henmon, they may, on the whole, be found to have considerable value as a standard of measure.

A form test.—*A Latin Form Test for High Schools*, prepared as a Master's thesis in the School of Education of the University of North Carolina by Lawrence J. Lohr, Jr., is described in the *High School Journal* (Chapel Hill, North Carolina) for November and December, 1918. The test is based upon a detailed study of the relative prominence given to the various topics in sixteen first-year Latin books. For example, Mr. Lohr found that an average of 2 lessons was given to the comparison of adjectives, and 4.4 lessons given to the passive voice. To this study of first-year Latin books was added a study of selected portions of each year's reading, for example, the first book of Caesar, with a view to finding out how many times the different tenses occur, the relative number of singulars and plurals, and the like. Furthermore, the words selected to illustrate these forms were chosen on the basis of frequency of occurrence in high-school reading as shown in Lodge's *The Vocabulary of High-School Latin*. The test consists of a list of thirty-five unambiguous forms—nouns, pronouns, and verbs. The case, number, voice, tense, etc., are to be checked in appropriate columns arranged at the right of the list. What is tested, therefore, is simply knowledge of inflexional forms without any reference to syntax or word meaning. No report of the results obtained by the use of these tests is at present available.

The Starch tests.—Two sets of tests printed in leaflet form for use in schools have been issued by Professor Daniel Starch of the University of Wisconsin. The first contains a vocabulary of one hundred words which appear to have been chosen by taking every word occurring in a Latin dictionary at a regular interval. The English equivalents, printed in different order from the Latin words, are given on the same page. A set of sentences,

ranging from the simplest form of a familiar verb to a passage consisting of two lines from Vergil, is also given.

The second test, prepared by Professor Starch and Mr. J. W. Watters, contains a vocabulary of one hundred words, made up by choosing every twentieth word from Lodge's *The Vocabulary of High-School Latin*. Translation tests are given for each of the four years of the high-school course, prepared as follows: For the first-year test, twenty sentences were selected by taking four sentences at equal distances apart in each of five widely used first-year textbooks. For the second year, seven sentences were chosen at intervals of twenty-two chapters in the first four books of Caesar's *Gallie War*. For the third year, seven sentences were taken at uniform intervals from Cicero, one from each of the orations against Catiline, one from the Archias, and two from the Manilian Law. For the fourth year, ten sentences were taken from the first six books of Vergil at intervals of five hundred lines.

Since the range of variation in the material read in different schools is rather wide, the results from such a set of tests are quite uncertain. As to the first-year test, obviously a school using some other text than any of the five employed by Professor Starch in arranging the sentences would be at a disadvantage. The printed forms of the tests contain so many typographical errors resulting in misspelled Latin words that it would be unwise to use them without very carefully correcting each copy.

SUMMARY

| Name | Scope | Where Published |
|------------------------|----------------------------------|--|
| Brown's tests . . . | Vocabulary, translation, syntax. | Parker Education Company, Madison, Wisconsin. |
| Hanus' tests | Vocabulary, translation, syntax. | <i>School Review</i> , XXIV (May, 1916), 342-51. |
| Henmon's tests . . . | Vocabulary, translation. | V. A. C. Henmon, the University of Wisconsin, Madison, Wisconsin. |
| Lohr's tests | Forms. | <i>High-School Journal</i> , Chapel Hill, North Carolina, for November and December, 1918. |
| Starch's tests . . . | Vocabulary, translation. | The University Co-operative Company, Madison, Wisconsin. |

NOTE.—In regard to the prices for the above, the Brown tests are not yet listed, and the Hanus and Lohr tests are not issued as separate publications. The Henmon tests are listed at one cent each. The Starch and Watters tests are sold at fifteen cents per half-dozen copies.

The Brown series of tests.—A series of Latin tests was given in the high schools of New Hampshire in 1917 under the direction of Professor H. C. Morrison, then state superintendent of public instruction. These tests were prepared by President H. A. Brown of the State Normal School, Oshkosh, Wisconsin, by whom a full report of the results of the investigation will be issued shortly for free distribution. The series consisted of four parts: a vocabulary test, a grammar test, a translation test with detached sentences, and a translation test with connected text. These tests will be published by the Parker Education Company, Madison, Wisconsin.

SOME TESTS AND SCALES IN MATHEMATICS

H. C. Wright

ALGEBRA

Coleman's Scale for Testing Ability in Algebra.—This scale consists of a series of twenty exercises arranged in order of difficulty. One copy will be needed for each pupil. An instruction sheet and an answer card are furnished. Address Superintendent W. H. Coleman, Crawford, Nebraska. Price, 50 cents per package of 50. Package contains one copy of *Instructions to Teachers*.

Hotz's First-Year Algebra Scales.—The Hotz scales comprise two series. Series A consists of five tests, one on each of the following topics: (1) addition and subtraction; (2) multiplication and division; (3) problems; (4) equations and formulae; and (5) graphs. Series B does not include graphs but is made up of four longer tests, one on each of the other four topics. A full report is given in *First-Year Algebra Scales* by H. G. Hotz. This publication and the separate tests may be obtained from the Bureau of Publications, Teachers College, Columbia University. One test is required for each pupil. Price of any test, except the one on graphs, 50 cents per 100. Price of graphs, 70 cents per 100.

Monroe's Standard Research Tests in Algebra.—This is a series of six tests involving multiplication, reduction to a common denominator, division, transposition, collecting terms, and solving equations, the topics and their treatment being based on the solution of the equations. Standards are available for both speed and accuracy. Address Bureau of Co-operative Research, Indiana University, Bloomington, Indiana. Price for a set of six tests, including directions and record sheets, \$1.40 per 100; in quantities less than 100, 1 ½ cents each, postage extra.

Rugg and Clark's Standardized Tests in First-Year Algebra.—These are a series of sixteen tests, each designed to measure skill in a formal operation in algebra. The exercises have been very carefully selected and standards have been obtained through their use in fifty school systems. Complete directions and tabulation sheets are furnished with the test. One set is required for each pupil. Price, complete, 4 cents per set. Address H. O. Rugg, University of Chicago, Chicago, Illinois.

GEOMETRY

Minnick's Geometry Tests.—This series of tests is based on the assumption that the demonstration of a geometrical theorem involves the following abilities: (1) the ability to draw the figure; (2) the ability to state the hypothesis and conclusion; (3) the ability to recall facts concerning the figure; (4) the ability to select and organize facts so as to produce the proof. Address J. H. Minnick, University of Pennsylvania, Philadelphia, Pennsylvania.

MATHEMATICS IN GENERAL

Roger's Mathematics Diagnostic Tests.—This series consists of the following: (1) a geometry test; (2) two tests in algebraic computations; (3) two tests in interpolations; (4) a superposition test. Non-mathematic tests in the series are: (1) mixed relations (association) test; and (2) Trabue's *Completion-Test Language Scales J and L*. For a full report on these tests see *Experimental Tests of Mathematical Ability and Their Prognostic Value* by Anna L. Rogers. This book together with the separate tests may be obtained from the Bureau of Publications, Teachers College, Columbia University. One test is required for each pupil. Price, 50 cents per 100; sample set, 12 cents.

OTHER TESTS AND SCALES

ALGEBRA

Childs, H. G. "The Measurement of Achievement in Algebra," *Third Indiana Conference on Educational Measurements*, II (1917), 171-83. *Indiana Algebra Tests*. Columbia City, Indiana.

Monroe, W. S. "A Test of the Attainment of First-Year High-School Students in Algebra," *School Review*, XXIII (March, 1915), 159-71.

Stromquist, C. E. *Preliminary Algebra Tests*. Laramie, Wyoming.

GEOMETRY

Metzler, W. H. "Problems in the Experimental Pedagogy of Geometry," *Journal of Educational Psychology*, III (December, 1912), 545-60.

Stockard, L. V. and Bell, J. C. "A Preliminary Study of the Measurements of Abilities in Geometry," *Journal of Educational Psychology*, VII (December, 1916), 567-80.

GRADING MATHEMATICS

Starch, D. and Elliott, E. C. "Reliability of Grading Work in Mathematics," *School Review*, XXI (April, 1913), 254-59.

An investigation of a geometry paper written as a final examination by a pupil in one of the largest high schools in Wisconsin. Plates of the answer paper were made and copies sent to 180 high schools in the North Central Association. One hundred and forty papers were returned. Of these, 128 gave evidence of having been marked with unusual care and attention. The results show extreme variability in marking.

A SURVEY OF MEASUREMENTS

In "Tests of Mathematical Ability—Their Scope and Significance," *Mathematics Teacher*, June, 1919, Anna L. Rogers has made a critical survey of what has been done in measuring pupil abilities in algebra and geometry from the inception of the movement in 1914 to date. (See summary sheet on pages 806-07.)

TESTS IN SCIENCE

Charles J. Pieper

There are at present no thoroughly standardized science tests on the market. Several attempts to establish such standard tests have appeared in recent years. Some of these are very general in nature, covering the entire field of secondary science. Others are concerned with the measurement of results in a particular science. The variety of methods used in these tests is the best indication that there is no agreement on the important question, What shall be the results of a course in secondary science?

Some of the references given below are included, not because they represent standardized tests, but rather because they are suggestive to those who may be interested in this phase of education. The bibliography follows the order of appearance of the articles or tests. Comments on the nature of the tests, or samples of the tests, are given in the bibliography.

BIBLIOGRAPHY

Starch's physics test—This is a completion test consisting of 75 mutilated sentences covering 102 important facts and principles found in five physics texts. Price 2 cents a sheet. University Supply Association, Madison, Wisconsin.

Starch's geography test.—The same as *Physics Test*, No. 4 in the above series.

SUMMARY

| Author | Title | Source | Characteristics | Cost |
|--------------------------------------|--|--|---|--|
| Coleman, W. H. . . . | <i>Coleman's Scale for Testing Ability in Algebra</i> | Superintendent W. H. Coleman, Crawford, Nebraska. | Twenty exercises arranged in order of difficulty. | 50 cents per package of 50. Package contains copy of <i>Instructions to Teachers</i> . |
| Hotz, H. G. | <i>First-Year Algebra Scales</i> | Bureau of Publications, Teachers College, Columbia University, New York. | Two series, A and B. A has 5 tests: (1) addition and subtraction; (2) multiplication and division; (3) problems; (4) equations and formulae; (5) graphs. B has 4 longer tests, one on each of above topics except graphs. | 50 cents per 100. 70 cents per 100 for graphs. |
| Monroe, W. S. . . . | <i>Standard Research Tests in Algebra</i> | Bureau of Co-operative Research, Indiana University, Bloomington, Indiana. | Six tests: (1) multiplication; (2) reduction; (3) division; (4) transposition; (5) collecting terms; (6) solving equations. | \$1.40 per 100. In quantities less than 100, 1½ cents each. |
| Rugg, H. O. and Clark, J. R. | <i>Rugg and Clark's Standardized Tests in First-Year Algebra</i> | H. O. Rugg, College of Education, University of Chicago. | Sixteen tests. Each measures skill in a formal algebraic operation. Cyclic arrangement and time limit for each test. | 4 cents per set. Directions and tabulation sheet furnished. |
| Minnick, J. H. . . . | <i>Minnick's Geometry Tests</i> | University of Pennsylvania. Published as a Doctor's thesis. | Based on the assumption that a geometric demonstration involves 4 abilities: (1) to draw the figure; (2) to state hypothesis and conclusion; (3) to recall facts about the figure; (4) to select and organize facts leading to a proof. | Not offered for sale. |
| Rogers, A. L. | <i>Mathematics Diagnostic Tests</i> | Bureau of Publications, Teachers College, Columbia University, New York. | Four groups: (1) geometry test; (2) two tests in algebraic computations; (3) two tests in interpolation; (4) superposition test. Two non-mathematic tests: (1) mixed relations (association); (2) Trabue's <i>Completion-Test Language Scales J and L</i> . | 50 cents per 100. Sample set, 12 cents. |

SUMMARY—Continued

| Author | Title | Source | Characteristics | Cost |
|---|--|---|---|------|
| Childs, H. G. . . . | "The Measurement of Achievement in Algebra." | <i>Third Indiana Conference on Educational Measurements</i> , II (1917), 171-83. | | |
| " " | <i>Indiana Algebra Tests</i> . | The author, Columbia City, Indiana. | | |
| Monroe, W. S. . . | "A Test of the Attainment of First-Year High-School Students in Algebra." | <i>School Review</i> , XXIII (March, 1915), 159-71. | | |
| Stromquist, C. E. . | <i>Preliminary Algebra Tests</i> . | The author, Laramie, Wyoming. | | |
| Metzler, W. H. . . | "Problems in the Experimental Pedagogy of Geometry." | <i>Journal of Educational Psychology</i> , III (December, 1912), 545-60. | | |
| Stockard, L. V. and Bell, J. C. | "A Preliminary Study of the Measurements of Abilities in Geometry." | <i>Journal of Educational Psychology</i> , VII (December 1916), 567-80. | | |
| Starch, D. and Elliott, E. C. | "Reliability of Grading Work in Mathematics." | <i>School Review</i> , XXI (April, 1913), 254-59. | An investigation of a geometry paper written as a final examination by a pupil in one of the largest high schools in Wisconsin. | |
| Irwin, H. N. | "A Preliminary Attempt to Devise a Test of the Ability of High-School Pupils in the Mental Manipulation of Space Relations." | <i>School Review</i> , XXVI (October, November, December, 1918), 600-5, 654-70, 759-72. | Material not strictly geometrical, but classification of errors of interest to geometry teachers. | |
| Thorndike, E. L. . . | "An Experiment in Grading Problems in Algebra." | <i>Mathematics Teacher</i> , VI (March, 1914) 123-34. | Problems arranged according to their difficulty as expressed by the judgment of two hundred teachers. | |

A test in mechanics.—This test devised by Randall, Chapman, and Sutton consists of fourteen problems in mechanics ranging from easy to very difficult, involving but little mathematics. The test may be found in an article entitled "The Place of the Numerical Problem in High-School Physics," *School Review*, XXVI (January, 1918), 39-43.

Jones's union science tests.—The Jones's tests are made up principally of numerical problems involving a knowledge of the principles of physics or chemistry. They may be obtained from F. T. Jones, 10109 Wilbur Avenue, Cleveland, Ohio.

The Gary survey tests.—The Gary tests were prepared by O. W. Caldwell for use in the survey of science instruction in the Gary public schools. They are designed to measure observation, discrimination, recall, and the use of information and reasoning in science problems. They may be found in the volume entitled *The Gary Public Schools: Science Teaching*, by Mr. Caldwell, published by the General Education Board, 61 Broadway, New York City.

A range of information test in biology.—This test by N. M. Grier is much like Dr. Downing's test referred to below, but uses one hundred terms from biology. It may be found in an article by Mr. Grier entitled "The Range of Information Test in Biology. I. Physiology," *Journal of Educational Psychology*, IX (April, 1918), 210-16.

A test in first-year chemistry.—This is a twenty-five-question test given to seventeen Texas city schools. The results permit valuable comparisons of schools, standardization of questions, and the ranking of individual pupils. The test is reported by J. Carleton Bell under the title, "A Test in First-Year Chemistry," in the *Journal of Educational Psychology*, IX (April, 1918), 199-210. It is very suggestive and will lead the way to more carefully controlled tests of a similar but more extensive kind.

Preliminary test in chemistry.—This test represents a study of test sheets used with classes in chemistry in determining differences between mixture, compound, and element. Results are given in a scale showing order of difficulty in classifying many common substances and materials. Definite suggestions for modification of instruction are added. This is a valuable study on one small phase of high-school chemistry, but is not a standardized test. It is published by H. A. Webb under the title, "A Preliminary Test in Chemistry," in the *Journal of Educational Psychology*, X (January, 1919), 36-44.

A range of information test in science.—This is a preliminary attempt to measure results of science instruction by testing pupils' acquaintance with general notions. E. R. Downing, "A Range of Information Test in Science," *School Science and Mathematics*, XIX (March, 1919), 228-33.

TESTS IN HOME ECONOMICS

Rosa Biery

Informational and reasoning tests in textiles and clothing.—These tests have been constructed by Leona F. Bowman and Mabel Trilling of the University of Chicago, and will be described in a forthcoming number of the *Supplementary Educational Monographs* published by the School of Education, University of Chicago. The tests are as yet tentative, but are being reorganized for purposes of standardization. The monograph will also include an analysis of the textbooks which materially influence the teaching of clothing, shelter, and foods, and an analysis of courses of study of seventy-six representative cities.

A scale for measuring skill in machine sewing.—This scale has been prepared by Florence Williams and Clara Knapp, formerly of the University of Chicago. The plan followed in making this scale is similar to that used by Thorndike in preparing his handwriting scale. A discussion of it will be found in the monograph mentioned above. The scale will be on sale in a few months.

A scale for measuring certain elements in hand sewing.—This scale was designed by Katherine Murdock, Columbia University, and is for sale by the Bureau of Publications, Teachers College, Columbia University, New York City.

II. CURRENT PUBLICATIONS RECEIVED DURING THE PAST MONTH

A. GENERAL EDUCATIONAL METHOD, HISTORY, THEORY, AND PRACTICE

BETELLE, JAMES O. *Checking Schedule for Projected School Buildings.*

Milwaukee, Wisconsin: Bruce Publishing Co., 1919. Pp. 32.

CHANCELLOR, WILLIAM ESTABROOK. *The Health of the Teacher.* Chicago:

Forbes & Co., 1919. Pp. ix+307. \$1.25.

COURTIS, STUART A. *The Gary Public Schools: Measurement of Classroom*

Products. New York: General Education Board, 1919. Pp. xxii+532.

\$0.30.

DOOLEY, WILLIAM H. *Principles and Methods of Industrial Education.*

Boston: Houghton Mifflin Co., 1919. Pp. xi+257. \$1.60.

WINSHIP, A. E. *Danger Signals for Teachers.* Chicago: Forbes & Co.,

1919. Pp. xi+204. \$1.25.

B. BOOKS PRIMARILY FOR ELEMENTARY-GRADE
TEACHERS AND PUPILS

- ASHBAUGH, ERNEST J. *Iowa Spelling Scale*. Extension Division Bulletin No. 53, Grades II, III, and IV, pp. 20; Bulletin No. 54, Grades IV, V, and VI, pp. 20; Bulletin No. 55, Grades VI, VII, and VIII, pp. 18. Iowa City, Iowa: University of Iowa, 1919.
- BENSON, E. F. *David Blaize and the Blue Door*. New York: George H. Doran Co., 1919. Pp. viii+217.
- Course of Study and Handbook of Information for Cerro Gordo County Elementary Schools*. Mason City, Iowa: Office of County Superintendent, 1919. Pp. 236.
- Courses of Study: *Arithmetic; Drawing and Industrial Art; English; Geography, History and Nature Study; Music and Physical Education*. Duluth, Minnesota: Duluth Public Schools, 1919.
- DEMING, ALHAMBRA G. *Games and Rhymes for Language Teaching*. Chicago: Beckley-Cardy Co., 1919. Pp. 123. \$0.75.
- Lesson Plans in English, Arithmetic and Geography for Grades Fourth to Eighth*. Edited by Alice Cynthia King Hall. Baltimore: Warwick & York, Inc., 1919. Pp. 92.
- PEARL, N. H., and BROWN, H. E. *Health by Stunts*. New York: Macmillan Co., 1919. Pp. xi+216. \$1.30.
- Progressive Music Series: *Primary Song Book for Sight Reading*. Silver, Burdett & Co., 1919. Pp. 64.
- Supplemental Problems in Arithmetic for Use in Rural Schools*. Los Angeles: Division of Educational Research, Los Angeles City School District, 1919 (third edition). Pp. 54.
- WILSON, E. N. *The White Indian Boy*. Revised and edited by Howard R. Driggs. Yonkers-on-Hudson, New York: World Book Co., 1919. Pp. xi+222. \$1.00.

C. BOOKS PRIMARILY FOR HIGH-SCHOOL
TEACHERS AND PUPILS

- CLELAND, ETHEL (compiler). *Five Hundred Business Books*. Washington: American Library Association, 1919. Pp. x+72.
- DAUDET, ALPHONSE. *Contes Choisis*. Edited by Walter D. Head. New York: Macmillan Co., 1919. Pp. xvi+201. \$0.60.
- Debate Index*. Pittsburgh: Carnegie Library of Pittsburgh, 1919 (third edition). Pp. 116. \$0.30.

- DOOLEY, WILLIAM H. *Applied Science for Metal-Workers*. New York: Ronald Press Co., 1919. Pp. x+479. \$2.00.
- DOOLEY, WILLIAM H. *Applied Science for Wood-Workers*. New York: Ronald Press Co., 1919. Pp. x+457. \$2.00.
- GEHRs, JOHN H. *The Principles of Agriculture*. New York: Macmillan Co., 1919. Pp. x+594. \$2.25.
- GRUENBERG, BENJAMIN C. *Manual of Suggestions for Teachers to Accompany "Elementary Biology."* Boston: Ginn & Co., 1919. Pp. iv+95. \$0.50.
- LARSIMONT, JOSEPH. *La Belgique Triomphante*. Yonkers-on-Hudson, New York: World Book Co., 1919. Pp. ix+311. \$1.40.
- McEWAN, OLIVER. *McEwan's Easy Shorthand*. Chicago: McEwan Shorthand Corporation, 72 W. Adams Street, 1919. Pp. 80. \$1.00.
- YOUNG, EDITH. *Student's Manual of Fashion Drawing*. New York: John Wiley & Sons, Inc., 1919. Pp. vii+107. \$2.00.

D. PUBLICATIONS OF THE UNITED STATES BUREAU OF
EDUCATION AND SIMILAR MATERIAL IN
PAMPHLET FORM

Recent issues of the Bureau of Education:

- Bulletin No. 2, 1919—*Standardization of Medical Inspection Facilities*.
- Bulletin No. 28, 1919—*Educational Periodicals during the Nineteenth Century*.
- Bulletin No. 31, 1919—*Summer Schools in 1918*.
- Bulletin No. 37, 1919—*Educational Changes in Russia*.
- Bulletin No. 40, 1919—*Work of the Bureau of Education for the Natives of Alaska, 1917-18*.
- Bulletin No. 43, 1919—*Education in France in 1916-18*.
- Bulletin No. 60, 1919—*Monthly Record of Current Educational Publications*.
- Library Leaflet No. 6, July, 1919—*Stories for Young Children*.
- Library Leaflet No. 7, August, 1919—*List of References on Vocational Education*.
- Report of the Commissioner of Education for the Year Ended June 30, 1918*. Washington: Government Printing Office, 1918. Pp. 155.
- SHARP, H. *Notes on Vernacular Education in Ceylon*. Calcutta, India: Superintendent Government Printing, 1919. Pp. 21.

E. MISCELLANEOUS PUBLICATIONS

- BROWNE, C. A. *The Story of Our National Ballads*. New York: Thomas Y. Crowell Co., 1919. Pp. 234.
- LATTIMORE, ELEANOR L., and TRENT, RAY S. *Legal Recognition of Industrial Women*. New York: Industrial Committee, War Work Council of the National Board of the Young Womens Christian Associations, 1919. Pp. xiv+91.
- MARDEN, ORISON SWETT. *Ambition and Success*. New York: Thomas Y. Crowell Co., 1919. Pp. 75.
- REESE, ALBERT M. *Wanderings in the Orient*. Chicago: Open Court Publishing Co., 1919. Pp. 81. \$1.00.
- Select Extracts from Chronicles and Records Relating to English Towns in the Middle Ages*. Edited by F. J. C. Hearnshaw. New York: Macmillan Co., 1919. Pp. vii+63.
- SINGER, IGNATIUS. *The Rival Philosophies of Jesus and of Paul*. Chicago: Open Court Publishing Co., 1919. Pp. 347. \$2.00.

